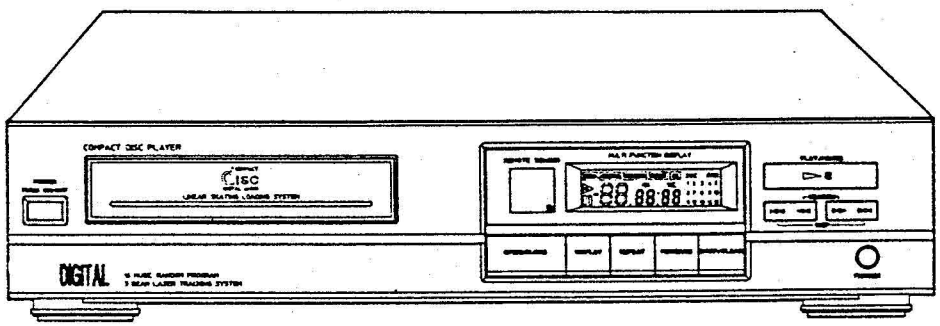
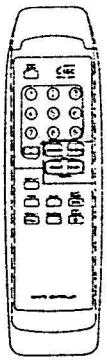
SAMSUNG
Electronics

SERVICE MANUAL
MODEL : CD-42R

STEREO
COMPACT DISC PLAYER





CD-42R

SPECIFICATION

GENERAL

Disc	: Compact disc
Laser	: Semiconductor laser(λ=780 nm)AlGaAs
R.P.M	: 200~500R.P.M
Scan velocity	: 1.2~1.4m/sec
Error correction	: CIRC
Numbers of channel	: 2
D/A conversion	: 16bit linear
Sampling frequency	: 44.1KHz×2
Power consumption	: 10W
Output(line output level)	: 2Vrms
Size	: 420(W)×80(H)×260(D) m/m
Weight	: 3.2Kg

AUDIO

Frequency range(±1dB)	: 20Hz~20KHz
Harmonic distortion (with 30KHz filter)	: 0.05% (1KHz)
Modulation system	: EFM
S/N ratio(with filter)	: 95dB
Dynamic range	: 96dB
Channel sepation	: 75dB(1KHz)

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■ SERVICING NOTE

1. Be careful handling the unit when servicing because the unit has laser built in.
2. Be sure not to separate the pick up from the unit and not to touch the ALPC (Automatic Laser Power Control).
3. The laser diode in the optical pick up may suffer electrostatic break down because of potential static electricity from clothing and your body.
4. GROUNDING TO HUMAN BODY
   - Put on a wrist strap whose one end is grounded for elimination of static electricity in your body.
   - Grounding to your clothing.
     Be sure to clothing doesn't touch the pick up because all static electricity in clothing can't be drained away.
5. Be sure to use identical replacement parts, especially for critical parts in the unit since many parts in the unit have special safety features marked by ⚠ in the circuit diagram or parts list.

■ SAFETY PRECAUTION

1. CLASS 1 LASER PRODUCT

This compact disc player is classified as a CLASS 1 laser product.

2. LASER WARNING LABEL

The label shown below may be affixed or not according to country.

(UL)

This Product Compiles with DHHS Rules 21CFR, Sub chapter J. At date of Manufacture.

(CSA)

CERTIFIED ONLY TO CANADIAN ELECTRICAL CODE.

CERTIFIE EN VERTU DU CODE CANADIAN DE LELETRICITE SEULEMENT

(EU)

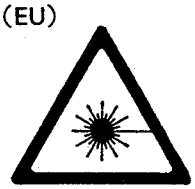
CLASS 1
LASER PRODUCT

Location : Enclosure back.

(SCAN)

ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.

(EU)



UL	:	Manufactured for U.S.A. Market.
CSA	:	Manufactured for Canadian Market.
EU	:	Manufactured for European Market.
SCAN	:	Manufactured for Scandinavian Market.

Location : on the disc clamper or inner side of CD door or nearby CD chassis.

3. LASER BEAM WARNING

ADVERSEL – USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.

VARNING – OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRR ÄR URKOPPLAD. STRÅLEN ÄR FARLIG.

VARITUS – LAITE SISÄLTÄÄ LASERDIODIN, JOKA LÄHETTÄÄ NÄKYMÄTÖNTA SILMILLE VAARALLISTA LASERSATEILYÄ.

CAUTION – INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.

4. LASER DIODE SPECIFICATION(OPTICAL PICK-UP)

- Material : AlGaAs
- Wavelength : 760–800nm
- Emission duration : Continuous
- Laser Output : 0.2mW

  *This output is the value measured at distance 1.6mm from the objective lens surface on the optical pick-up block.
- Classification : CLASS 1

5. WARNING FOR SERVICING

WARNING : When servicing, do not approach the LASER exit with the eye too closely. In case it is necessary to confirm LASER beam emission, be sure to observe from a distance of more than 30cm from the surface of the objective lens on the optical pick-up block.

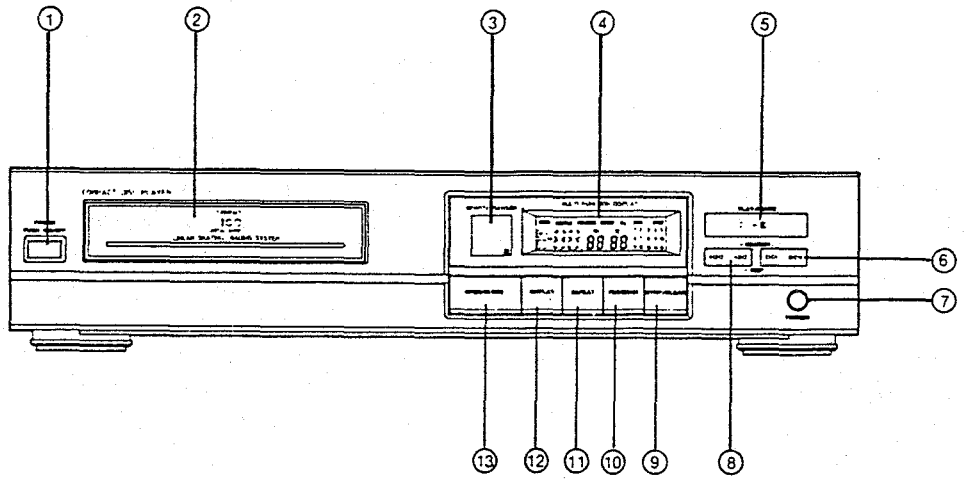
VARNING : När underhållningsarbeten utförs, närma dig försiktigt och se inte på laserutstralningen på för nära häll. Ifall det är nödvändigt att betrygga laserstrålens utströmning. Var säker att kontrollera detta från ett avstånd av mer än 30cm(11.81inch.) från den objektiva linsens yta på den optiska utsåndningspunkten.

ADVARSEL : Når repareringsarbejdet udfoeres, naerm dig forsigtigt og se ikke på laserudstrålingen på for naer hånd. I tilfaeldet at det er noedvaendigt at bestemme laserstrålens udstråling. Vaer sikker på at kontrollere dette fra en afstand af mere end 30cm(11.81inch.) fra den objektive linses overflade på den optiske udsendningspunkt.

VAROITUS : Silmiä on varottava viemästä liian iäbeiie Laser-poistokanavaa huoiion aikana. Jos on välttämätöntä varmistaa Laser-Säteen päästö, pysyttels sitä tarkasteltaessa vähintään 30cm etäiyydellä optisen lukon objecktiivilinssin pinnasta.

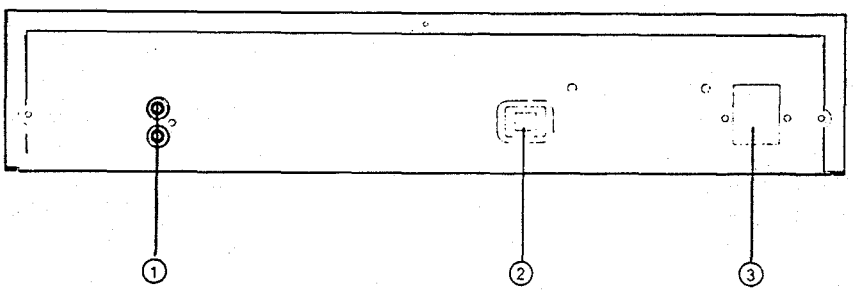
■ NAMES OF CONTROL

1. FRONT PANEL



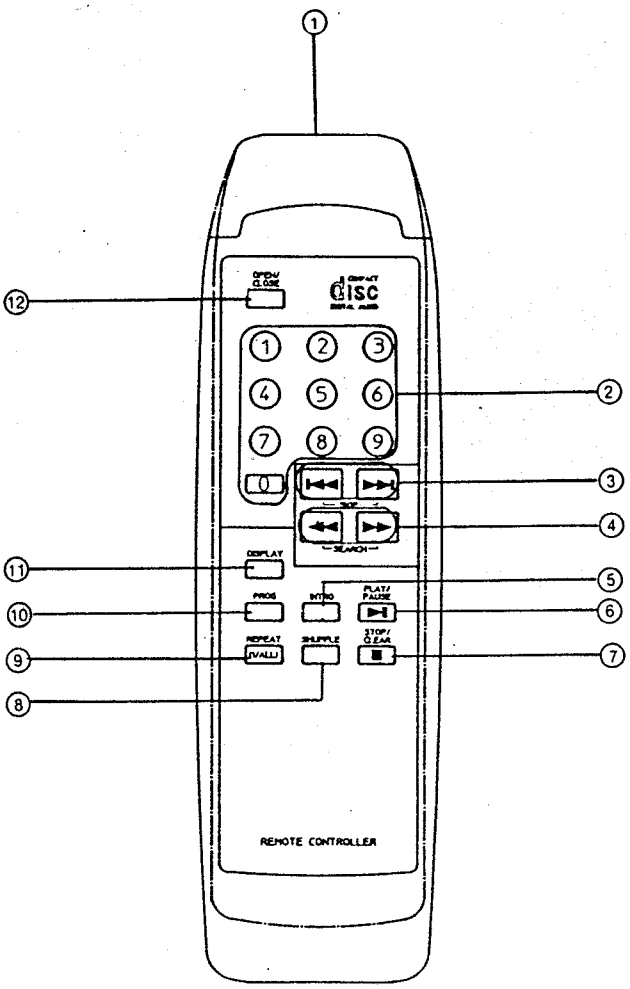
1. POWER BUTTON
2. CD DOOR
3. REMOTE SENSOR
4. DISPLAY
5. PLAY/PAUSE(►▮▮)
6. F. SKIP/SEARCH BUTTON(►► ►►|)
7. HEAD PHONE JACK
8. BACK SKIP/SEARCH BUTTON(|◄◄ ◄◄)
9. STOP/CLEAR BUTTON
10. PROGRAM BUTTON
11. REPEAT BUTTON
12. DISPLAY BUTTON
13. OPEN/CLOSE BUTTON

2. REAR PANEL



1. SIGNAL OUTPUT JACK
2. VOLTAGE SELECTOR(OPTION)
3. POWER CORD JACK

3. REMOTE CONTROL



1. TRANSMITTER WINDOW
2. NUMBER BUTTON
3. SKIP BUTTON(|◀◀, ▶▶|)
4. SEARCH BUTTON(◀◀, ▶▶)
5. INTRO-SCAN BUTTON
6. PLAY/PAUSE BUTTON(►II)
7. STOP/CLEAR BUTTON(■)
8. SHUFFLE PLAY BUTTON
9. REPEAT BUTTON
10. PROGRAM BUTTON
11. DISPLAY BUTTON
12. OPEN/CLOSE BUTTON

■ ABBREVIATION

AC	: Alteranating Current
ALC	: Automatic Level Control
AMP	: Amplifier
BLK	: Black
BLU	: Blue
BPF	: Band Pass Filter
D	: Depth
D/A	: Digital/Analog
DC	: Direct Current
FE	: Focus Error
FIG	: Figure
GND	: Ground
H	: Height, High
Hz	: Hertz
IC	: Integrated Circuit
IF	: Intermediate Frequency
I/O	: Input/Output
L	: Left
LCD	: Liquid Crystal Display
LPF	: Low Pass Filter
MAX	: Maximum
MIN	: Minute, Minimum
mm	: Millimeter
NF	: Negative Feedback
OP AMP	: Operational Amplifier
ORG	: Orange
OSC	: Oscillator
PCB	: Printed Circuit Board
PLL	: Phase Lock Loop
R	: Right
RFI	: Radio Frequency Input
RFO	: Radio Frequency Output
SEC	: Second
TP	: Test Point
TRANS	: Transformer
VCO	: Voltage Controlled
VOL	: Volume
Vref	: Reference Voltage
W	: Watt, Weight
WHT	: White
YEL	: Yellow

■ DISASSEMBLY PROCEDURE

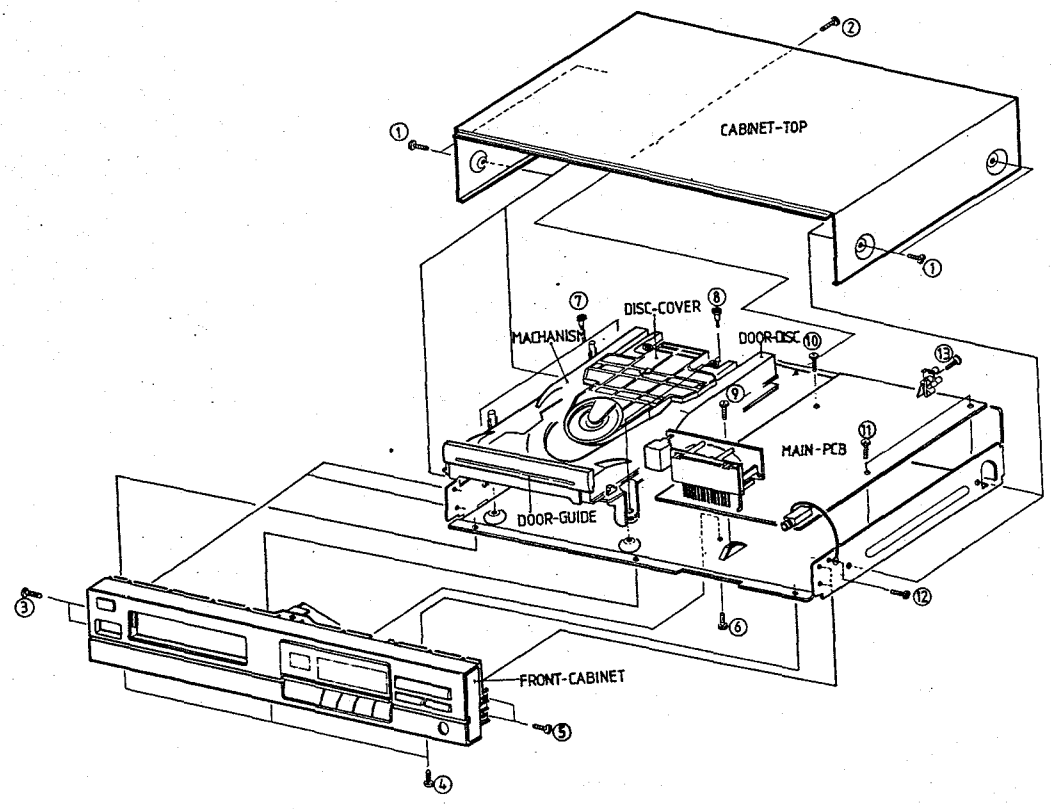


FIG. 1

1. Remove 5 screws(①, ②)
2. Hold DISC-COVER a little bit up and push mechanism out the front then remove door guide.
3. Remove 8screws(③~⑥) holding on FRONT-CABINET and pull out towards you.
4. Remove 4screws(⑦, ⑧) holding on DECK MECHANISM and lift up.
5. Remove 6screws(⑨~⑬) from MAIN PCB.
6. When reassembling, the reverse procedure is to be used.

*After removing CABINET-TOP, disconnect LEVER-POWER from the POWER PCB switch and remove the 3screws from the REAR CHASSIS. Remove POWER PCB FIG. 2

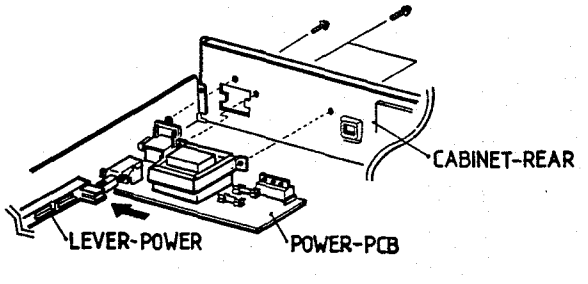


FIG. 2

■ BASIC OPERATING INSTRUCTION

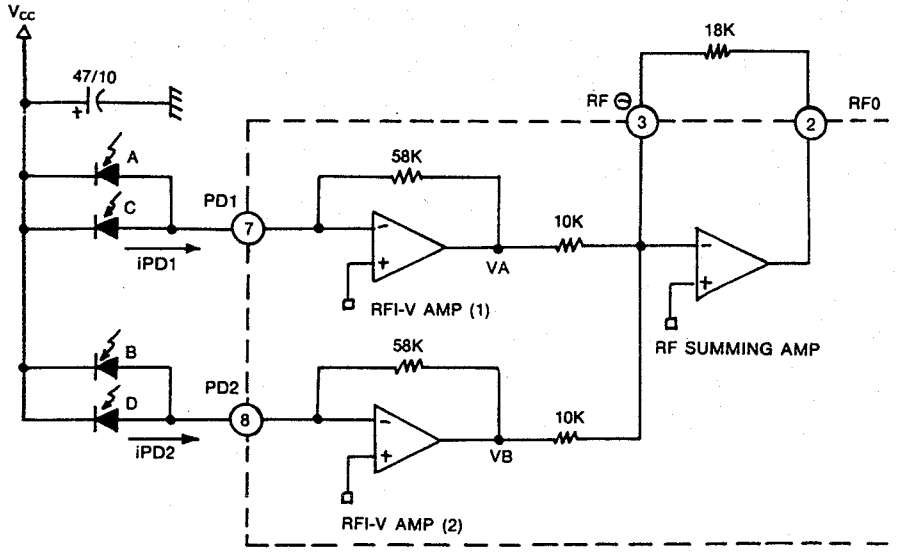
RF AMPLIFIER(CXA1081M : RF AMP)

RF I-V amplifiers (1) and (2) are converted to voltage from the signal current of pin photodiodes connected to PD1 and PD2 through the 58kΩ equivalent resistance. Furthermore, it is added in the RF summing amplifier and(A+B+C+D) is output at RFO. At this pin(RFO), the eye pattern can be checked.

The RF amplifer output voltage(low-frequency) is

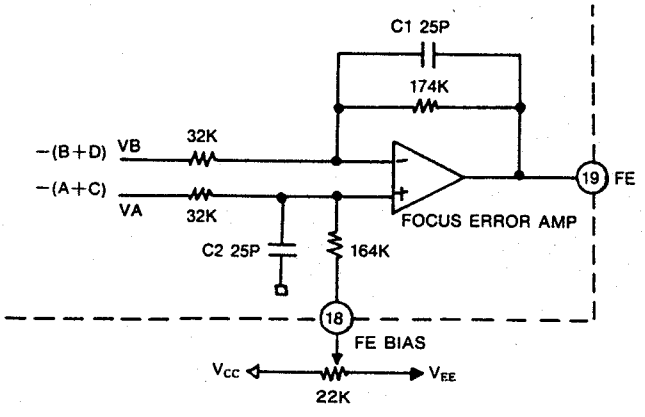
$V_{RFO} = 2.2 \times (V_A + V_B)$

$= 127.6k\Omega \times (iPD1 + iPD2)$. (at RFO)



FOCUS ERROR AMPLIFIER(CXA1081M : RF AMP)

The Focus Error Amplifier is the difference between RF I-V amplifier (1) output (A+C) and RF I-V amplifier (2) output (B+D). The output becomes(A+C-B-D).



The FE amplifier output voltage(low-frequency) is

$V_{FE} = 5.4 \times (V_A - V_B)$

$= (iPD2 - iPD1) \times 315.4k\Omega$

Note) Maximum common mode rejection is delivered when the composite impedance to GND is about 10kΩ at the external VR of pin ⑱(VR resistance is about 40kΩ)

TRACKING ERROR AMPLIFIER(CXA1081M : RF AMP)

E I-V amplifier and F I-V amplifier are converted to voltage from the signal current of pin photodiode connected : E and F. The E and F I-V amplifiers output voltage is,

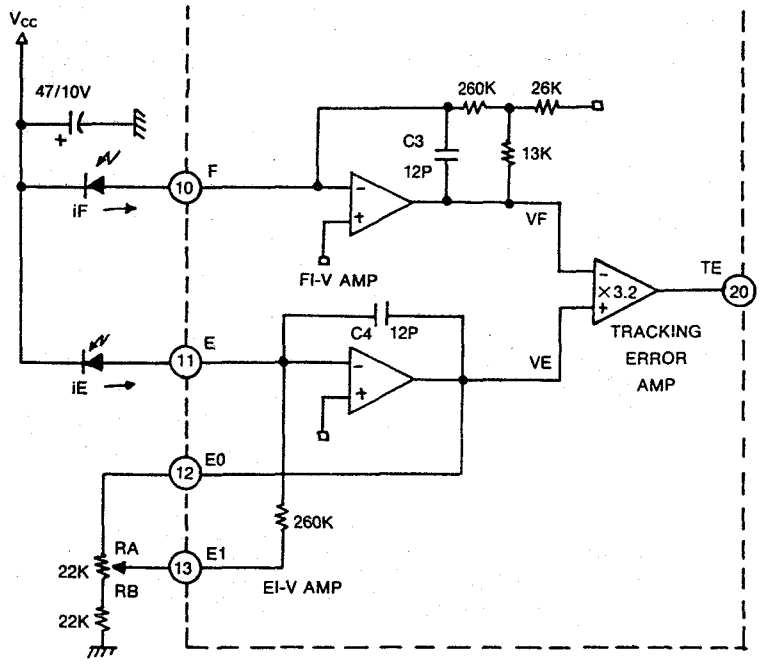
$V_F = iF \times 403k\Omega$, and

$V_E = iE \times 260k\Omega \times R_A/(R_B + 22k) + (R_A + 260k)$.

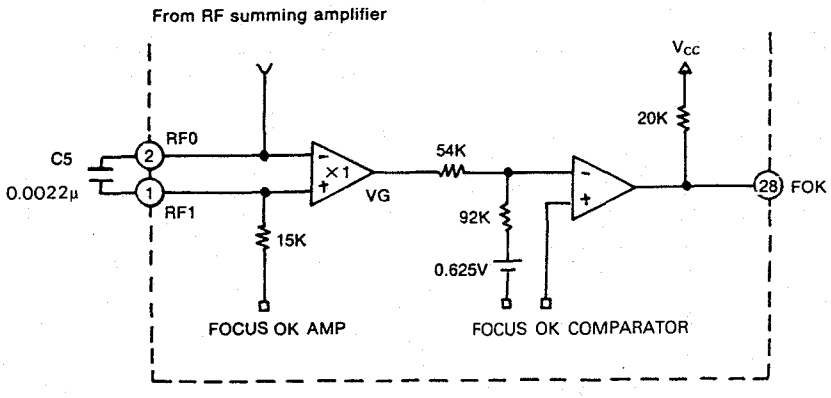
The tracking error amplifier is the difference between the E I-V amplifier output and the F I-V amplifier output this output is(E-F).

$V_{TE} = (V_E - V_F) \times 3.2$

$= (iE - iF) \times 1290k\Omega$



FOCUS OK CIRCUIT(CXA1081M : RF AMP)



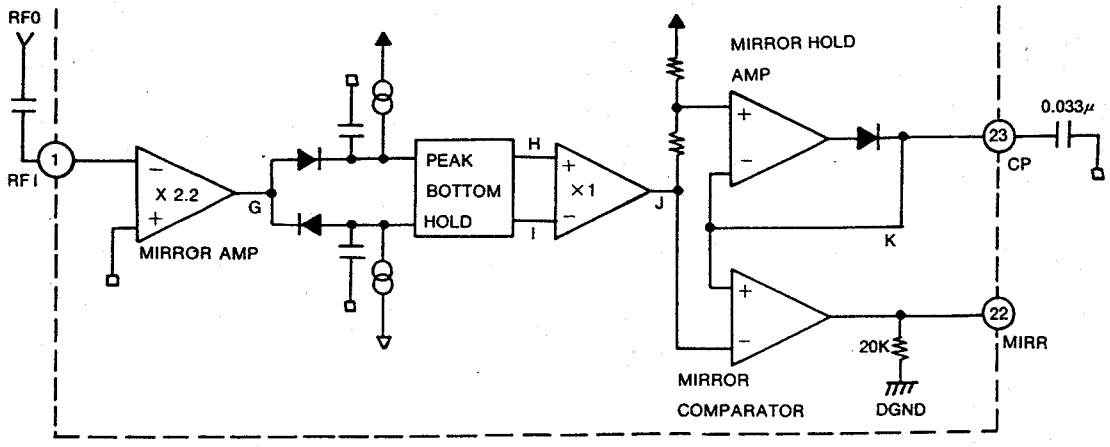
The focus OK circuit generates a timing window to look on the focus servo from a focus search status. Pin 1 will get the HPF(High Pass Filter) output from an RF signal from Pin 2 -the LPF(Low Pass Filter) output(opposit phase) for the focus OK amplifier output.

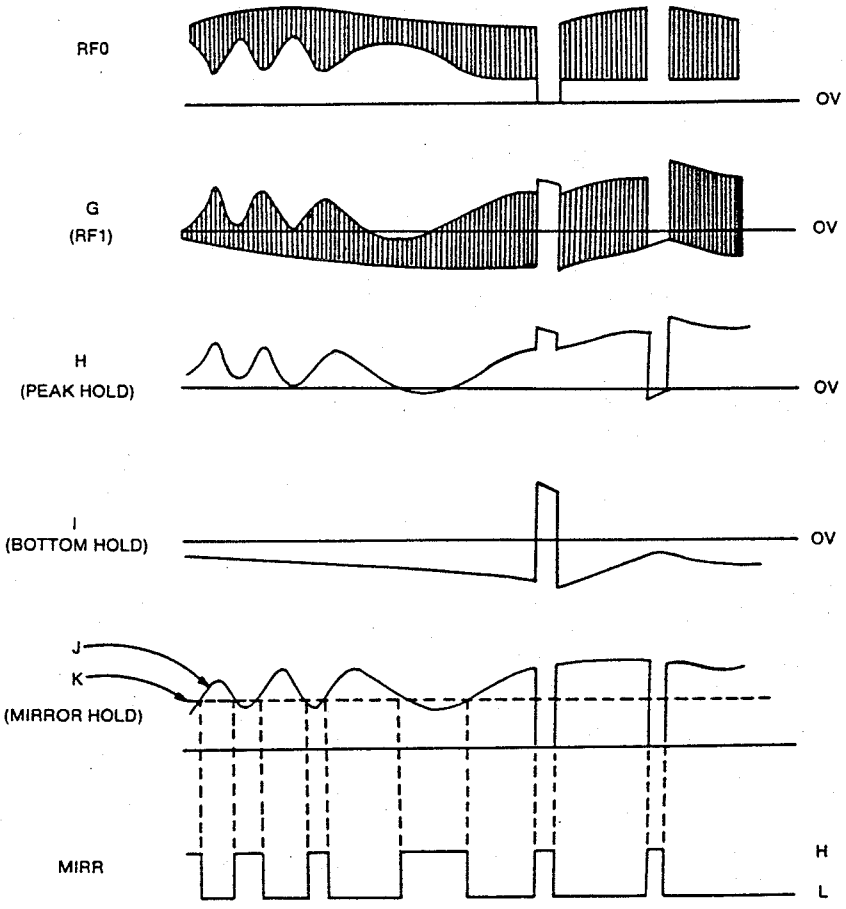
The focus OK amplifier output is inverted when $V_{RFI} - V_{RFO} = -0.37V$.

C5 is for determining the time constants of HPF in the EFM comparator and mirror circuits as well as LPF in the focus OK amplifier. When 0.01 μF is selected for C5, fc(cut-off frequency)=1KHz, prevents the block error rate from degenerating as a damaged RF envelope results from the scratched disc etc.

MIRROR CIRCUIT(CXA1081M : RF AMP)

This circuit, after amplifying the RFI signal, holds its bottom and peak. The peak hold is done with a time constant able to track down a 30KHz traverse and the bottom hold. This is done with a time constant able to track down envelope fluctuations in the revolving cycle.

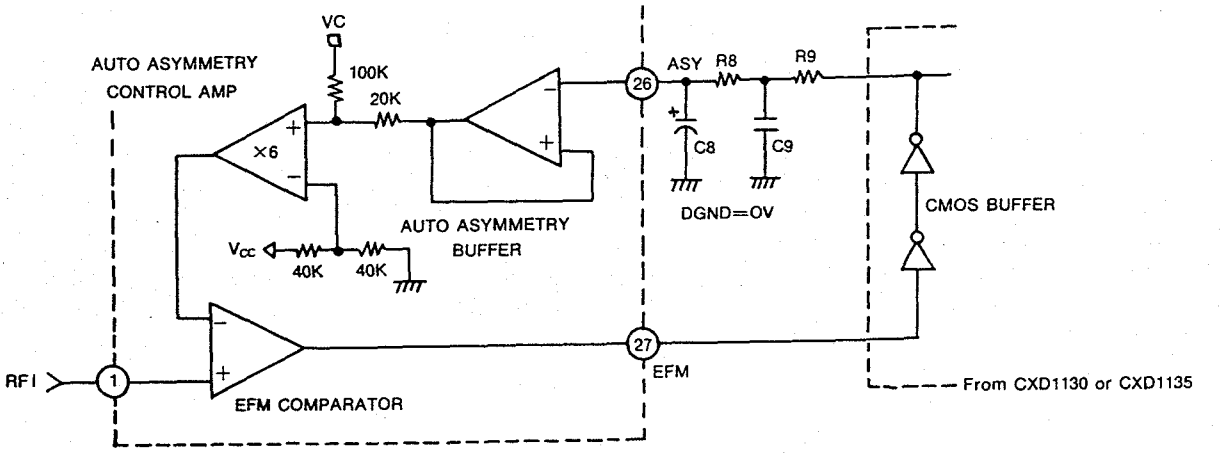




With the differential amplification of these peak and bottom hold signals, H and I, the envelope signal J(demodulated to DC) is obtained. Two-thirds of the peak value of this signal J is held with a large time constant for the signal k. When k is compared with J, a mirror output is obtained. That is, the mirror output gives "L" on the disc track, "H" between tracks(mirror section) and also "H" in the defect detection. The time constant for the mirror hold must be sufficiently larger than that of the traverse signal.

EFM COMPARATOR(CXA1081M : RF AMP)

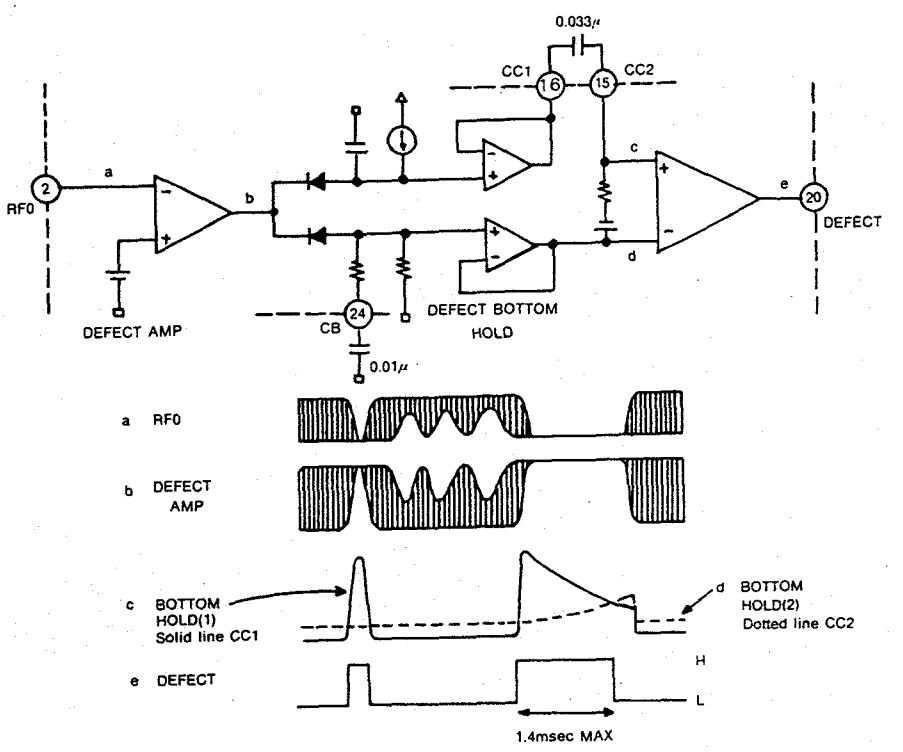
The EFM comparator changes RF signal into a binary value. As the asymmetry generated due to variations in disc manufacturing cannot be eliminated by the AC coupling alone, the reference voltage of EFM comparator is controlled utilizing the fact that the generation probability of 1, 0 is 50% each in the binary EFM signals.



As this comparator is a current SW type, each of the H and L levels does not equal the power supply voltage, requiring feedback through a CMOS buffer.

R8, R9, C8 and C9 from a LPF to obtain(V_{CC}+DGND)/2V. When fc(Cut-off frequency) is made more than 500Hz, the EFM low frequency component leaks dably, degenerating the block error rate.

DEFECT CIRCUIT(CXA1081M : RF AMF)



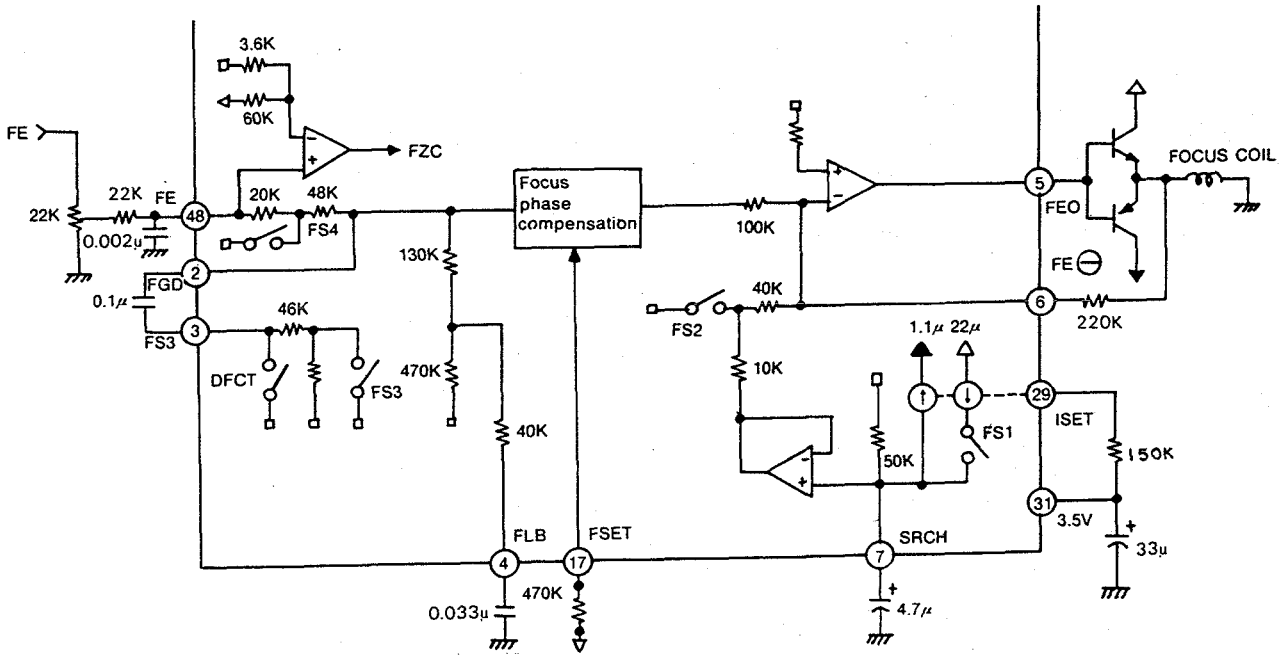
The RFI signal bottom, after being inverted, is held with two time constants, one long and one short. The short time-constant bottom hold is done for a disc mirror defect more than 0.1msec.
The long time-constant bottom hold is done with the mirror level prior to the defect. By differentiating this with a capacitor coupling and shifting the level, both signals are compared to generate the mirror defect detection signal.

APC CIRCUIT(Automatic power control)

As the laser diode has large negative temperature characteristics in its optical output when driven with a constant current, the output must be a controlled current to obtain a constant output power, with a monitor photo diode. This constitutes the APC circuit. The CXA1081M covers all the LD P-sub/N-sub and +5V split power supply/5V single power supply.

FOCUS SERVO SYSTEM(CXA1082AQ : SERVO SIGNAL PROCESSOR)

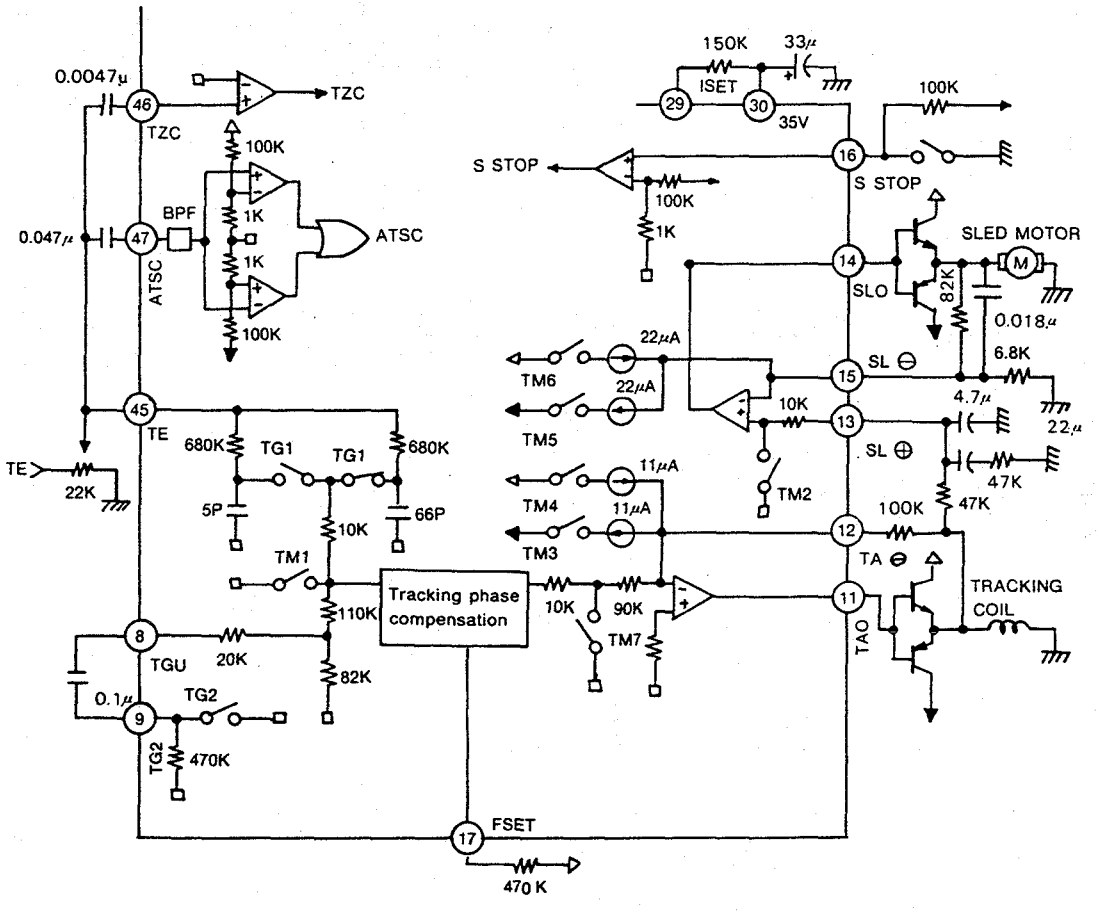
The above is a block diagram of the focus servo system.
When FS3 is switched on, the high frequency gain can be reduced by forming a low frequency time constant through a capacitor connected across pins 2 and 3 and the internal resistor.
The capacitor across the pin 4 and GND has a time constant to raise the low frequency usually playback condition.
The peak frequency of the focus phase compensation is inversely proportional to the resistor connected to pin 17(about 1.2 KHz when the resistor is 470kΩ).



The focus search peak becomes about±1.1Vp-p with above constant. The peak is inversely proportional to the resistor connected across the pins 29 and 30. However, when this resistor is varied, the peaks of track jump and sled kick also vary.
The FZC comparator invert input is set to 2% of the difference between the reference voltage Vcc and VC(pin 1) : 2%×(Vcc-VC).
Note: A resistor of 470kΩ is recommened for pin 17.

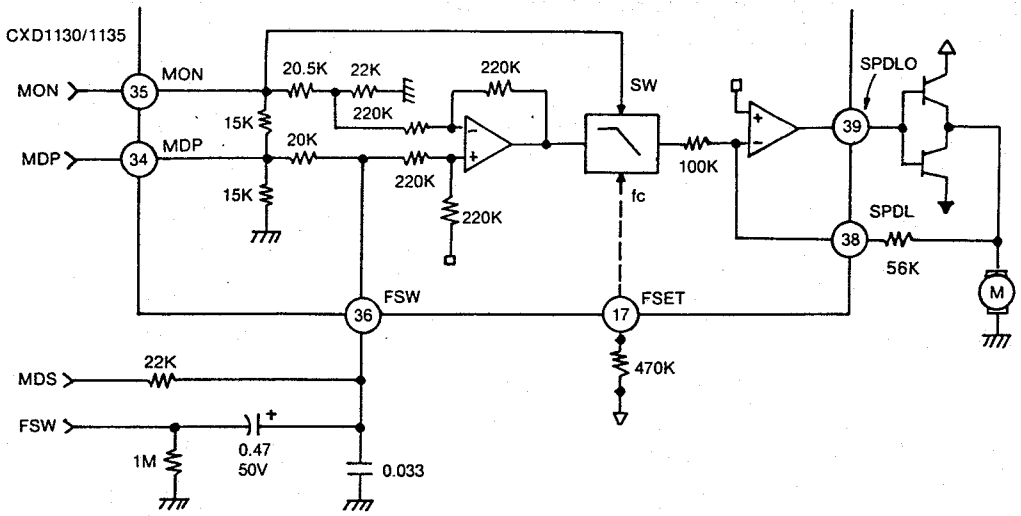
TRACKING SLED SERVO SYSTEM(CXA1082AQ : SERVO SIGNAL PROCESSOR)

The above is a block diagram of the tracking sled servo system.
The capacitor across pins 8 and 9 has time constant to lower the high frequency when TG2 is switched off. The tracking phase compensation peak frequency is inversely proportional to the resistor connected to pine 17(about 1.2KHz when the resistor is 510kΩ).
For a traking jump in the FWD or REV direction, TM3 or TM4 are set to ON. At this time, the peak voltage fed to the traking coil is determined by the TM3 and TM4 current values and the feedback resistor from pin 12. That is :
Track jump peak voltage=TM3(TM4) current value×feedback resistor value



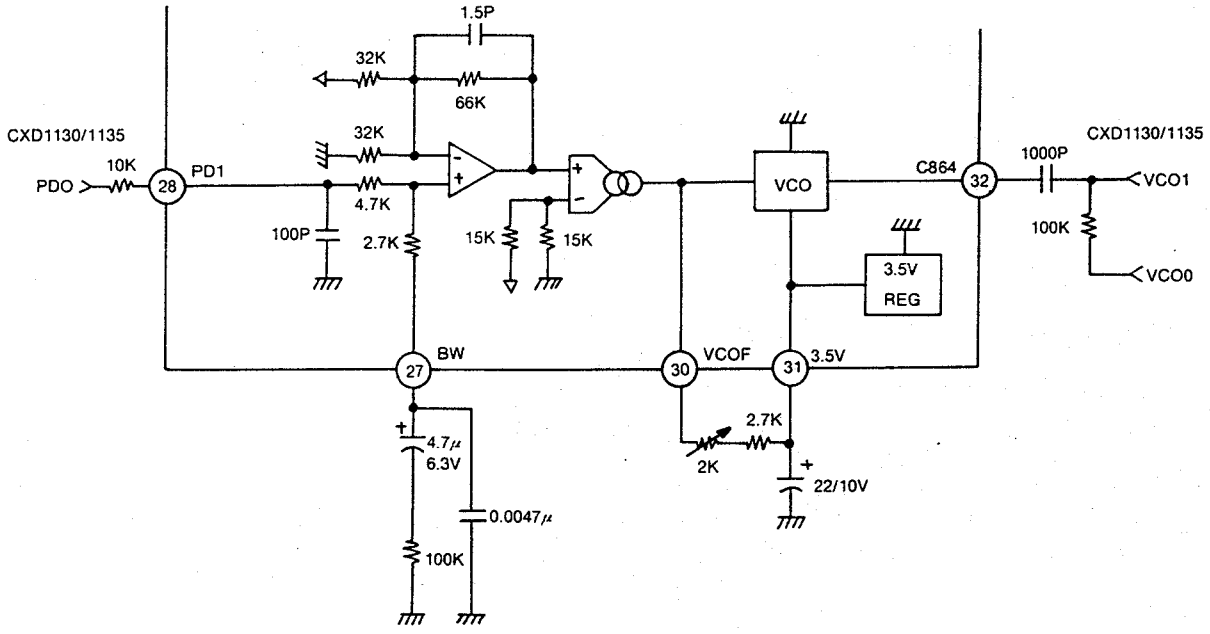
The FWD or REV sled kick is done by setting TM5 to ON. At this time, the peak voltage added to the sled motor is determined by the TM5 or TM6 current value and the feedback resistor from pin 15.
Sled jump peak voltage=TM5(TM6) current value×feedback resistor value
Each SW current value is determined by the resistor connected to pins 29 and 31.
When the resistor is at about 120kΩ.
TM3 or TM4 is+11μA and TM5 or TM6 is+22μA.
This current value is almost inversely proportional to the resistor, variable within a range of about 5 to 40 μA for TM3.
S STOP is the ON/OFF detection signal for the limit SW or the sled motor's innermost circumference.

SPINDLE SERVO AND LPF(CXA1082AQ : SERVO SIGNAL PROCESSOR)



The 200Hz LPF is formed with 0.033μF and 22kΩ connected to pin 36 and the secondary LPF is formed with the built-in LPF(fc up to 200Hz with 510kΩ for pin 17), and the carrier component of the CLV servo error signals MDS and MDP is eliminated.
In the CLV-S mode, FSW becomes L and the pin 36 LPF fc lowers, strengthening the filter further.
With the pin 17 resistor connected to Vcc, fc does not vary with power supply voltage fluctuations.
Note) Use the phase compensation instead of MDS when the CX23035 is used.

VCO LOOP FILTER AND 8.64MHz VCO(CXA1082AQ : SERVO SIGNAL PROCESSOR)



The phase compensation output PDO input from pin 28 has its PWM carrier component removed in the loop filter. Then, the V-I conversion is made and the free-running frequency setting current from pin 30 is added to control the VCO frequency. The VCO self-running frequency is almost inversely proportional to the resistor across pins 30 and 31. This resistor is set so that the PLL capture range center matches the 4.3218MHz at ' n 70 of the CXD1135/1130.

PIN DESCRIPTION(CXD1130Q : DIGITAL SIGNAL PROCESSOR)

No.	Symbol	I/O	Description
1	FSW	O	Pin 1 output is switched constant when the output filter of the spindle motor is enegized.
2	MON	O	ON/OFF control for spindle motor.
3	MDP	O	Spindle motor drive. Provides rough control during CLV-S mode and phase control during CLV-P mode.
4	MDS	O	Spindle motor drive. Controls speed during CLV-P mode.
5	EFM	I	EFM signal from RF amplifier.
6	ASY	O	Controls slice level of the EFM signal.
7	LOCK	O	The output of pin 7 refiects the status of the GFS signal which is sampled at WFCK/16. When the GFS signal is "H", the output of pin 7 is also "H", but when the signal has remianed "L" for at least 8 samples, the output of pin 7 is "L".
8	VCOO	O	When VCO locks to EFM signal, the frequency becomes 8.6432MHz.
9	VCOI	I	VCO input.
10	TEST	I	(0V)
11	PDO	O	The output of Pin 11 provides phase comparison of EFM signal and VCO/2.
12	Vss	—	GND(0V)
13	CLK	I	Pin 13 provides serial transmission clock from the CPU. Data is latched on the leading edge of the clock.
14	XLT	I	Pin 14 provides latch input from the CPU. 8-bit shift register data(serial data received from the CPU) is latched in each of the registers.
15	DATA	I	Serial data from the CPU.
16	XRST	I	System reset("L")
17	CNIN	I	Tracking pulse input.
18	SENS	O	Output reflecting internal condition as designated by address.
19	MUTG	I	Muting input. MUTG is "L" when ATTM of internal register A is "L"(normal condition). MUTG is "H" when muting condition is set.
20	CRCF	O	Output the resuits CRC check of subcode Q.
21	EXCK	I	Clock input for subcode serial output.
22	SBSO	O	Serial output of subcode.
23	SUBQ	O	Output of subode Q.
24	SCOR	O	Output of subcode sync S0+S1.
25	SQCK	I/O	Clock for reading subcode Q.
26	SQEX	I	Input for selecting SQCK.
27	POTX	O	Digital output($\overline{\text{WFCK}}$ is output when DO is off or for the CXD1130Q)
28	GFS	O	Indicates the frame sync lock status.
29	DB08	I/O	Data pin for external RAM. DATA8(MSB)
30	DB07	I/O	Data pin for external RAM. DATA7
31	DB06	I/O	Data pin for external RAM. DATA6
32	DB05	I/O	Data pin for external RAM. DATA5
33	V_{DD}	—	Power supply(+5V)
34	DB04	I/O	Data pin for external RAM. DATA4
35	DB03	I/O	Data pin for external RAM. DATA3
36	DB02	I/O	Data pin for external RAM. DATA2
37	DB01	I/O	Data pin for external RAM. DATA1(LSB)
38	RA01	O	Output address of external RAM. ADDR01(LSB)
39	RA02	O	Output address of external RAM. ADDR02
40	RA03	O	Output address of external RAM. ADDR03

No.	Symbol	I/O	Description
41	RA04	O	Output address of external RAM. ADDR04
42	RA05	O	Output address of external RAM. ADDR05
43	RA06	O	Output address of external RAM. ADDR06
44	RA07	O	Output address of external RAM. ADDR07
45	RA08	O	Output address of external RAM. ADDR08
46	RA09	O	Output address of external RAM. ADDR09
47	RA10	O	Output address of external RAM. ADDR10
48	RA11	O	Output address of external RAM. ADDR11(MSB)
49	RAWE	O	Writes enable output signal to external RAM.(Active when "L".)
50	RACS	O	Chip select output signal to external RAM.(Active when "L".)
51	C4M	O	Divider output for crystal. f=4.2336MHz
52	Vss	—	GND(0V)
53	XTAI	I	Input to crystal oscillator circuit. Depending on the mode the frequency is either f=8.4672 or 16.9344MHz.
54	XTAO	O	Output from crystal oscillator circuit. Depending on the mode the frequency is either f=8.4672 or 16.9344MHz.
55	MD1	I	Mode selection input 1.
56	MD2	I	Mode selection input 2.
57	MD3	I	Mode selection input 3.
58	SLOB	I	Code switch input for audio data output. 2's complement output when "L", off set binary output when "H".
59	PSSL	O	Code switch input for audio data output. Serial output when "L", parallel output when "H".
60	APTR	O	Control output for aperture compensation. "H" during R-ch.
61	APTL	O	Control output for aperture compensation. "H" during L-ch.
62	DA01	O	DA01(LSB of parallel audio data) is output when PSSL="H". C1F1 is output when PSSL="L".
63	DA02	O	DA02 is output when PSSL="H". C1F2 is output when PSSL="L".
64	DA03	O	DA03 is output when PSSL="H". C2F1 is output when PSSL="L".
65	DA04	O	DA04 is output when PSSL="H". C2F2 is output when PSSL="L".
66	DA05	O	DA05 is output when PSSL="H". C2FL is output when PSSL="L".
67	DA06	O	DA06 is output when PSSL="H". C2PO is output when PSSL="L".
68	DA07	O	DA07 is output when PSSL="H". RFCK is output when PSSL="L".
69	DA08	O	DA08 is output when PSSL="H". WFCK is output when PSSL="L".
70	DA09	O	DA09 is output when PSSL="H". PLCK is output when PSSL="L".
71	DA10	O	DA10 is output when PSSL="H". UGFS is output when PSSL="L".
72	DA11	O	DA11 is output when PSSL="H". GTOP is output when PSSL="L".
73	V_{DD}	—	Power supply(+5V)
74	DA12	O	DA12 is output when PSSL="H". RAOV is output when PSSL="L".
75	DA13	O	DA13 is output when PSSL="H". C4LR is output when PSSL="L".
76	DA14	O	DA14 is output when PSSL="H". C2IO is output when PSSL="L".
77	DA15	O	DA15 is output when PSSL="H". G2IO is output when PSSL="L".
78	DA16	O	DA16(MSB of parallel audio data) is output when PSSL="H". DATA is output when PSSL="L".
79	WDCK	O	Strobe signal output. Output is 176.4KHz when DF is on. Output is 88.2KHz When DF is off or when the chip being used is CXD1125Q.
80	LRCK	O	Strobe signal output. Output is 88.2KHz when DF is on. Output is 44.1KHz when DF is off or when the chip being used is CXD1125Q.

Notes)

C1F1 ┐
C1F2 ┘ Monitor output reporting status of error correction for C1 decoder.

C2F1 ┐
C2F2 ┘ Monitor output reporting status of error correction for C2 decoder.

C2FL : Output of status condition. C2FL is set "H" when the C2 sequence presently being corrected becomes impossible to correct.

C2PO : Display output of the C2 pointer. It is synchronized with the audio data output.

RECK : Read frame clock output. 7.35KHz of the crystal system.

WFCK : Write frame clock output. 7.35KHz when locked by the crystal system.

$\overline{\text{PLCK}}$: Output VCO/2. f=4.3218MHz when locked by the EFM signal.

UGES : Output for unprotected frame sync patterns.

GTOP : Output for display of status of frame sync protection.

RAOV : Output for display of either RAM overflow or underflow for ±4 frame jitter absorption

C4LR : Strobe signal. 352.8KHz when DF is on, 176.4KHz when DF is off, or when the LSI is CXD1125Q.

$\overline{\text{C210}}$: Inverse output of C210.

C210 : Bit clock output. 4.2336MHz when DF is on, 2.1168MHz when DF is off, or when the LSI is CXD1125Q.

DATA : Serial data output of audio signal.

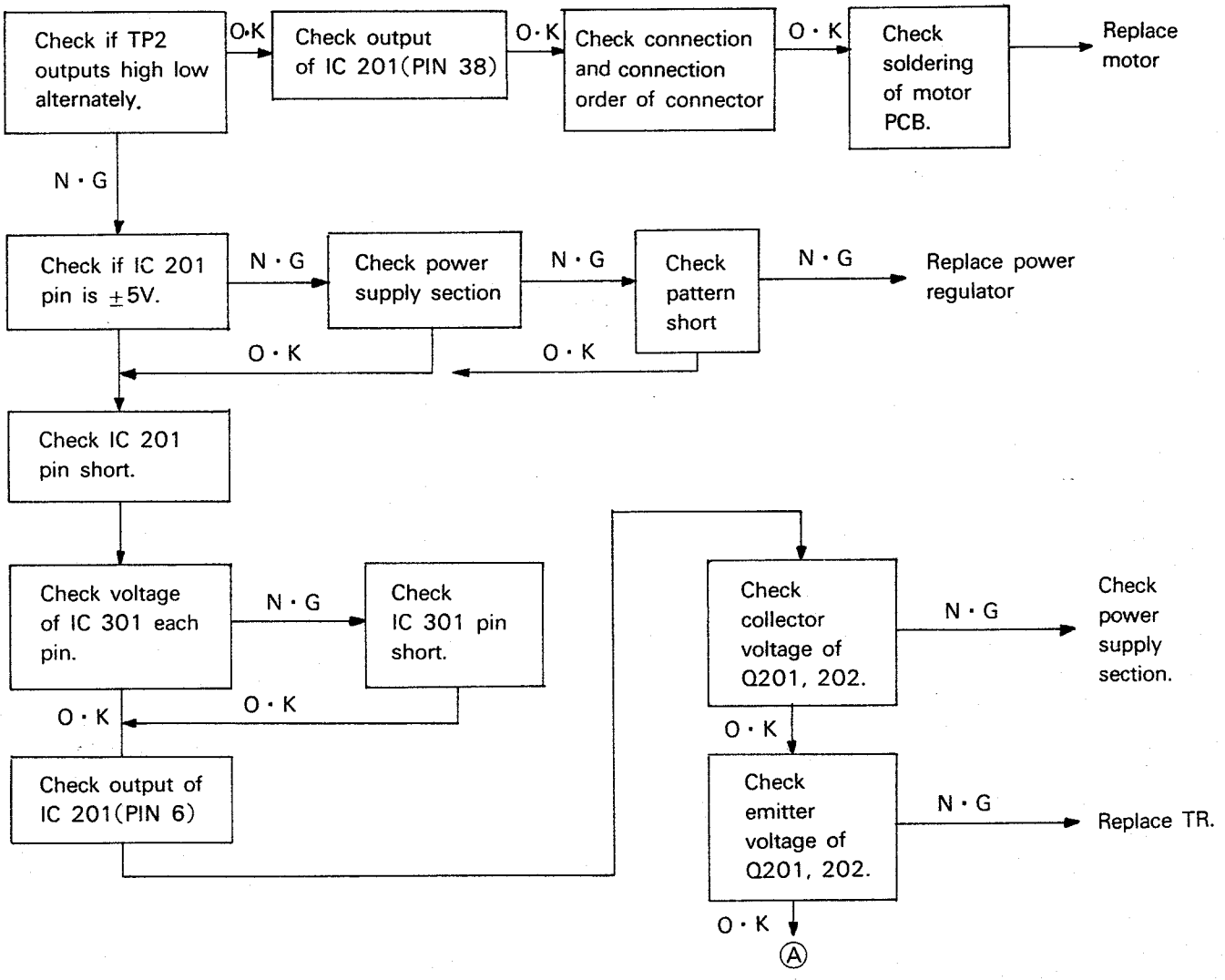
■ TROUBLE SHOOTING PROCEDURE

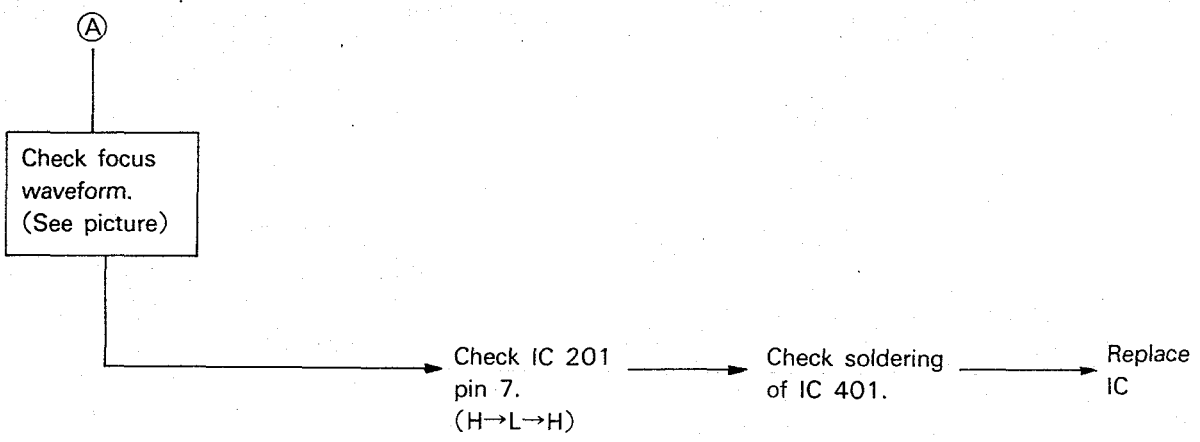
STEP	ITEM	CHECK POINT
1	Check TR and IC voltage.	• Check if fuse is off. • Check P/T 2nd voltage(DC 10.5V). • Check requlator output : ±5V
2	〃	• See the voltage chart.
3	Check if crystal oscillates.	• μ-COM : 4.00MHz • DSP(CLK) : 4.321~4.322MHz
4	Check door OPEN/CLOSE.	• Check if μ-COM pin no 36 voltage changes(H↔L) when pressing OPEN/CLOSE button repeatedly.
5	Check LCD display.	• Check oscillation(IC 601 PIN 58, 59)
6	Check remote controller.	• Check IC voltage. +5V(PIN 54) • Check DATA input.(IC 601 PIN 42)

■ TROUBLE SHOOTING

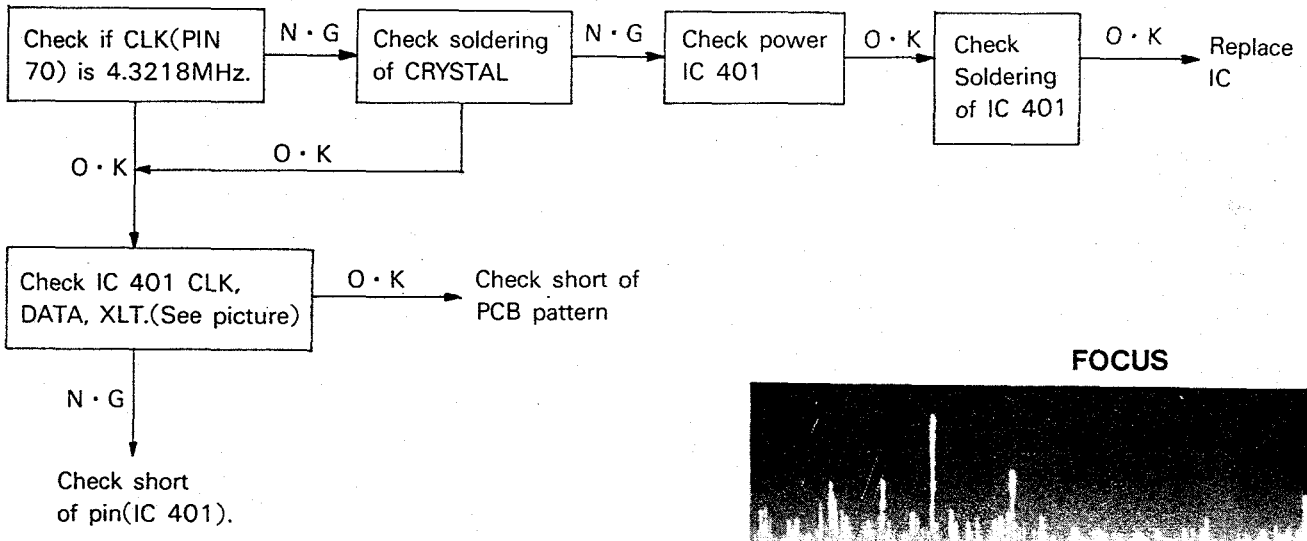
1. DISC ROTATION NOT SENSIBLE

* N.G : No Good

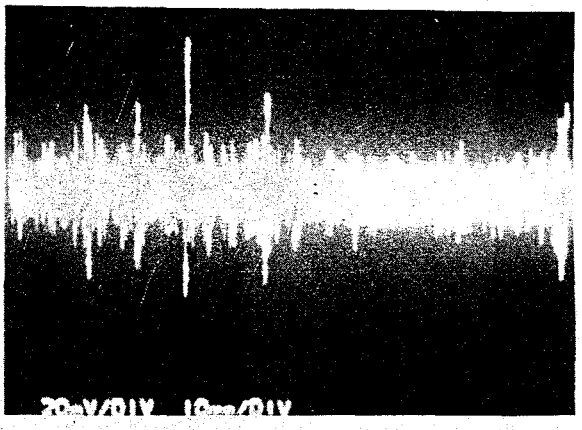




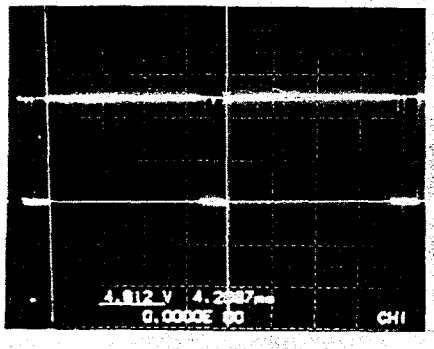
2. LEAD-IN NOT WORKING



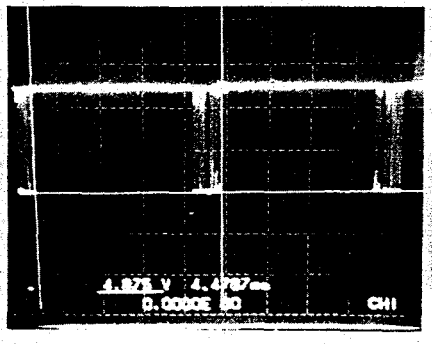
FOCUS



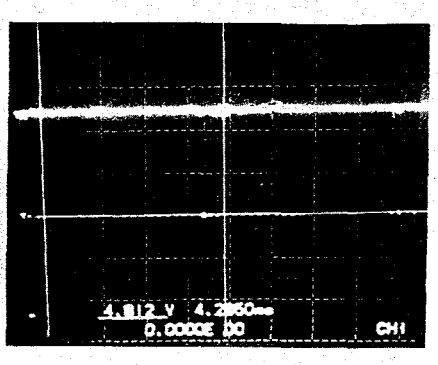
DATA



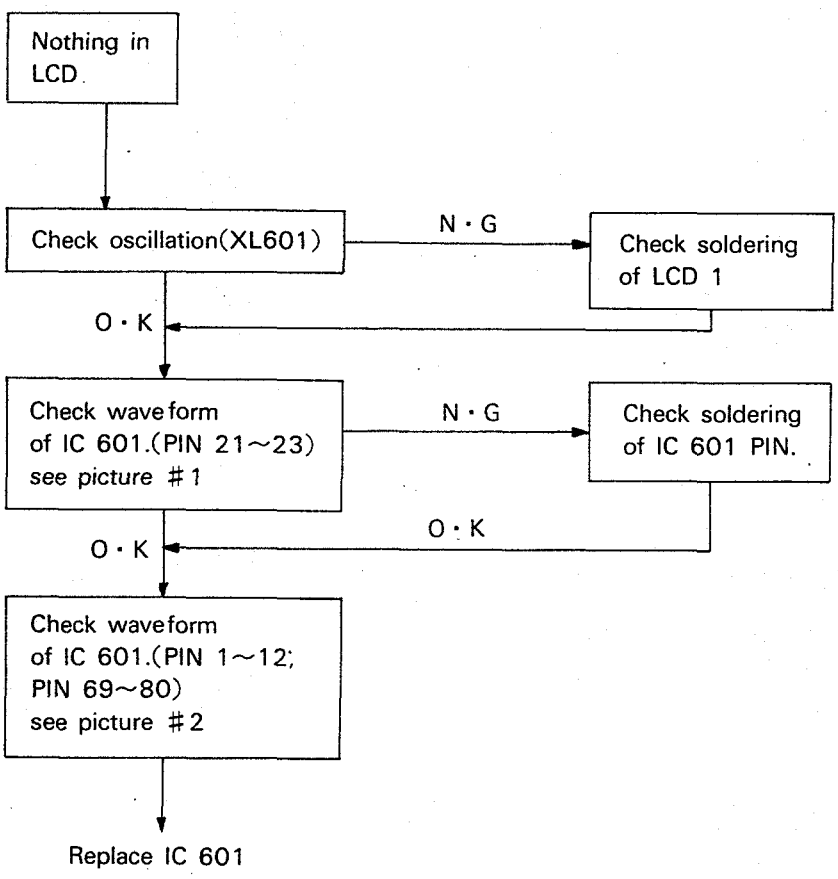
CLK



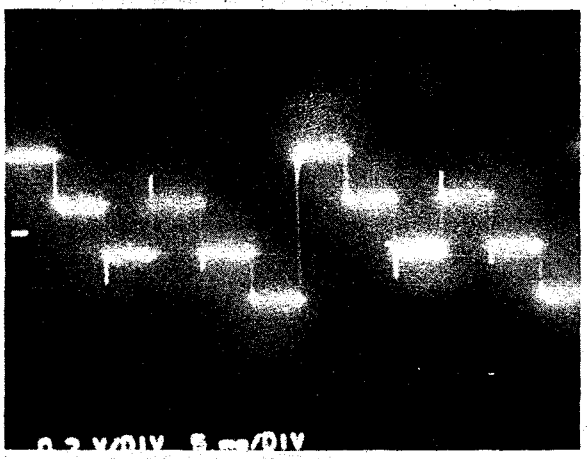
XLT



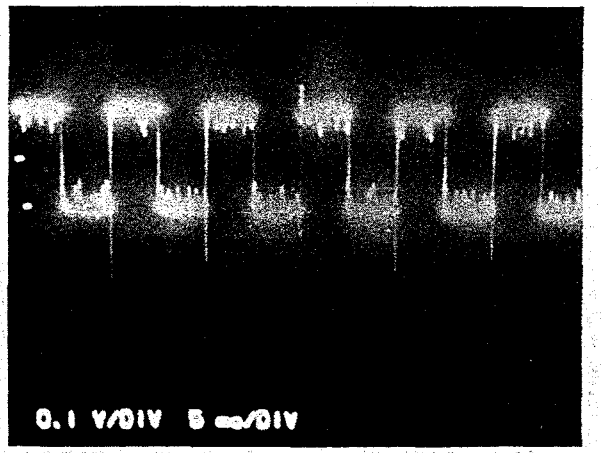
3. DISPLAY SECTION


Nothing in LCD
Check oscillation(XL601)
N · G
Check soldering of LCD 1
O · K
Check wave form of IC 601.(PIN 21~23) see picture #1
N · G
Check soldering of IC 601 PIN.
O · K
O · K
Check waveform of IC 601.(PIN 1~12; PIN 69~80) see picture #2
Replace IC 601

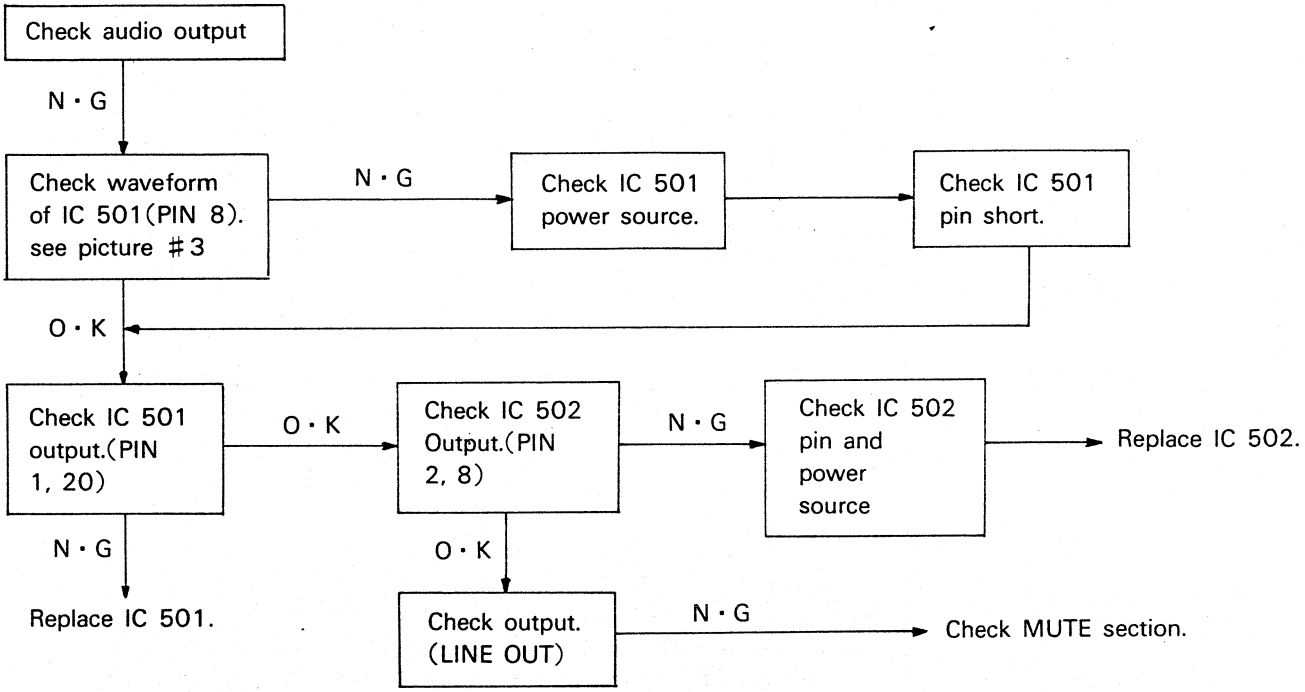
#1 LCD COMMON



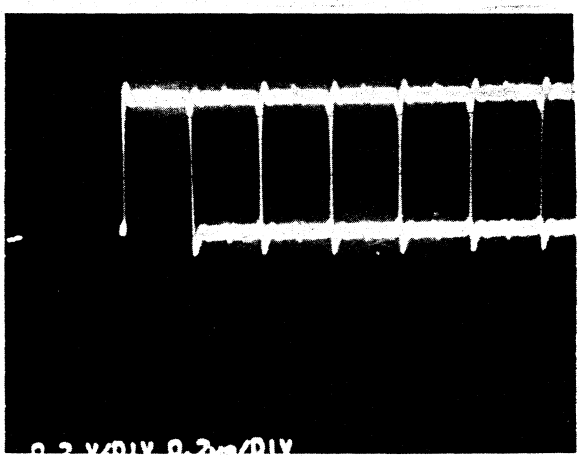
#2 LCD DATA



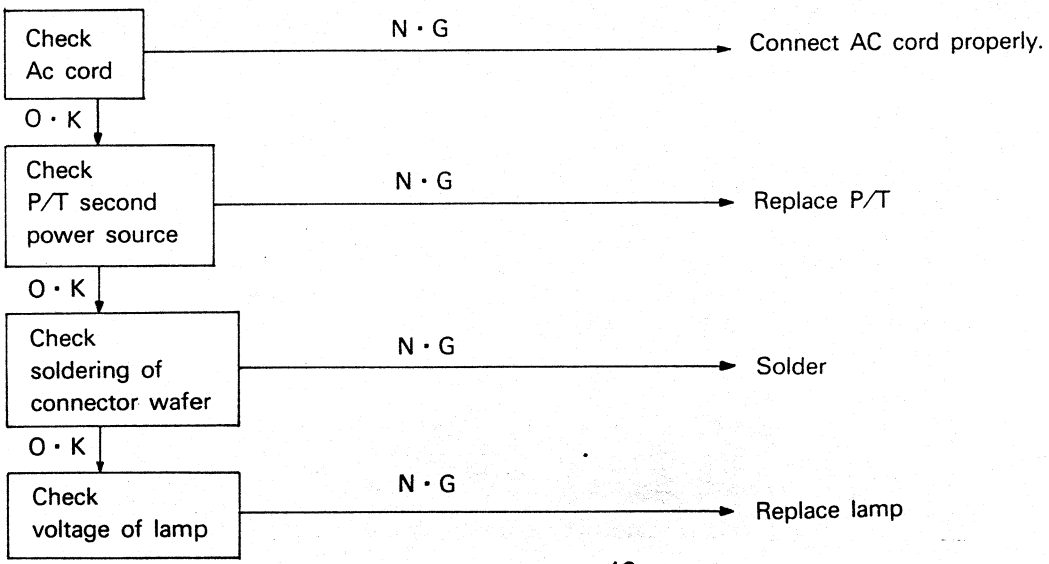
4. AUDIO SECTION


Check audio output
N • G
Check waveform of IC 501(PIN 8). see picture #3
N • G
Check IC 501 power source.
Check IC 501 pin short.
O • K
Check IC 501 output.(PIN 1, 20)
O • K
Check IC 502 Output.(PIN 2, 8)
N • G
Check IC 502 pin and power source
Replace IC 502.
N • G
Replace IC 501.
O • K
Check output. (LINE OUT)
N • G
Check MUTE section.

#3



5. LAMP NOT SENSIBLE



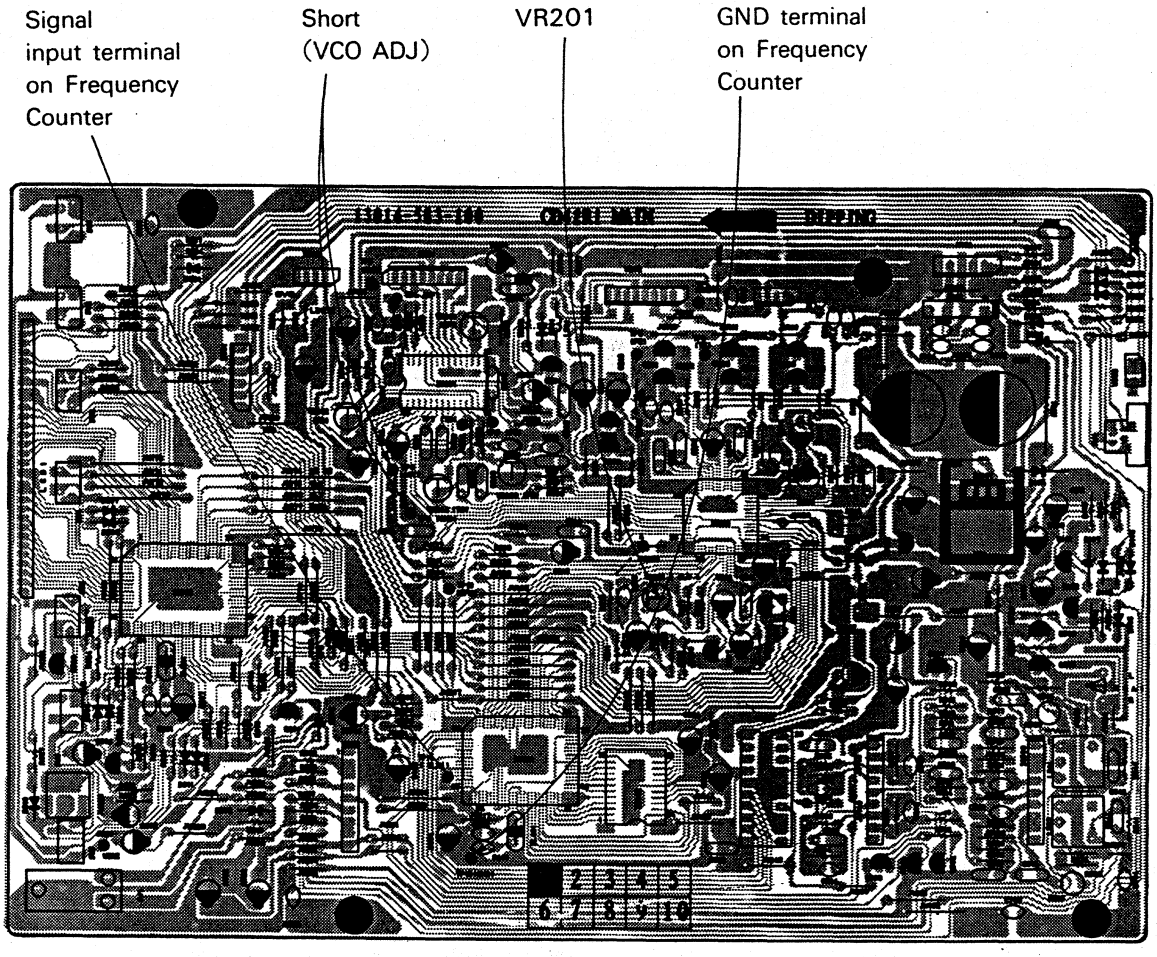
■ ADJUSTMENT AND ADJUSTING POINT LOCATION

1. VCO ADJUSTMENT PROCEDURE

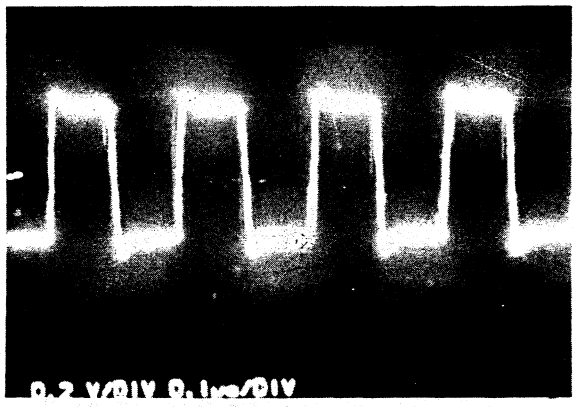
- 10 : 1 damping probe.

1) Turn power on.
2) Close door and adjust while stopped.
3) Connect GND terminal on the Frequency Counter to TP12.
4) Connect the signal input terminal on the Frequency Counter to TP11.
5) Short out TP8 to TP9.
6) Adjust VR201 so that Frequence Counter reads 4.4MHZ~4.45MHZ.

(PARTS SIDE)



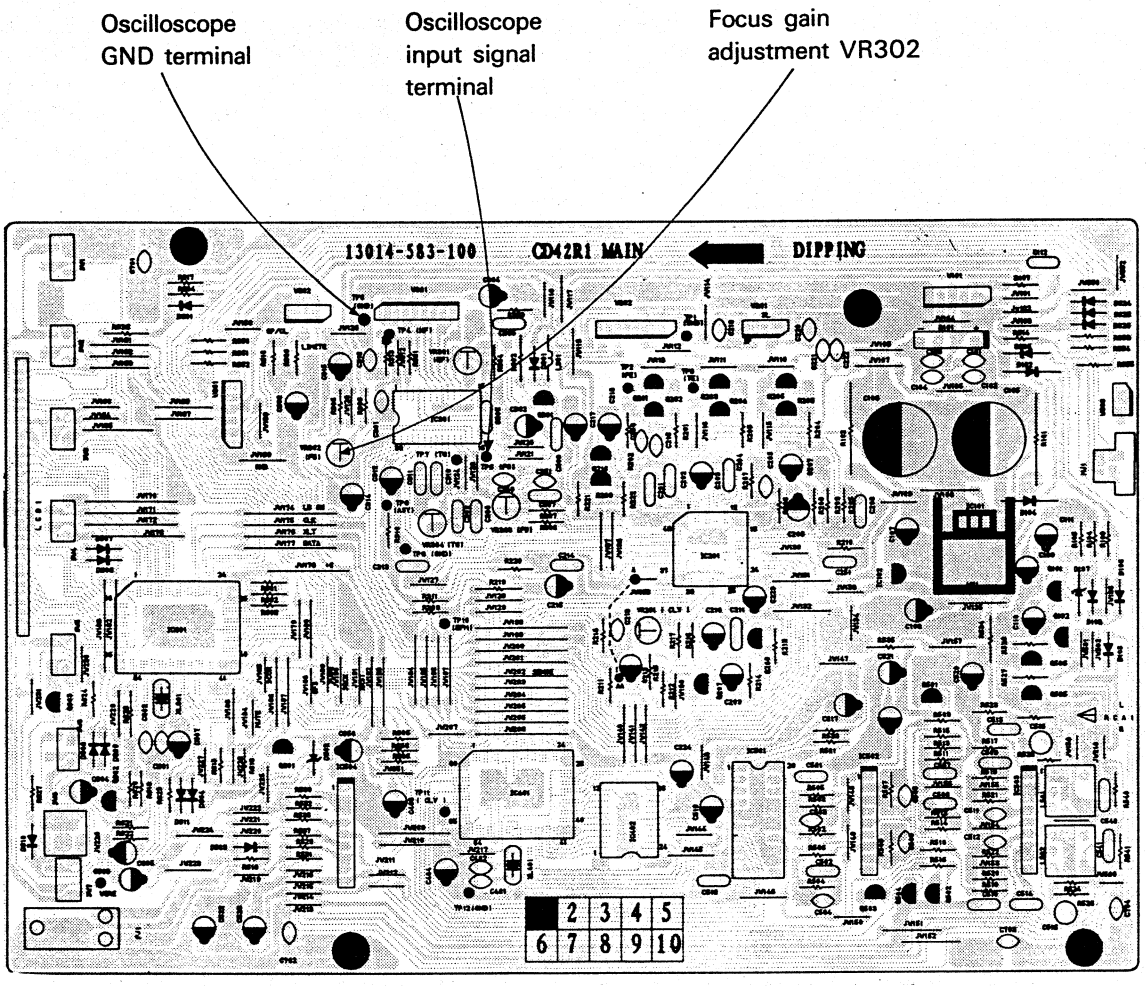
VCO



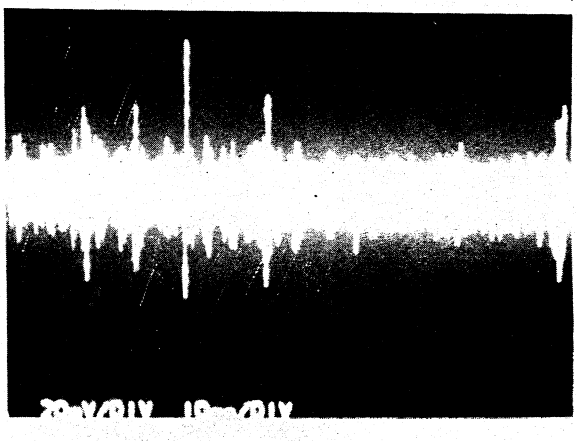
2. FOCUS BIAS ADJUSTMENT

1) Adjust while stopped.
2) Connect GND terminal on the oscilloscope to TP5.
3) Connect signal input terminal on the oscilloscope to TP6.
4) Adjust VR302 so that signal voltage is 140±10mV.

(PARTS SIDE)



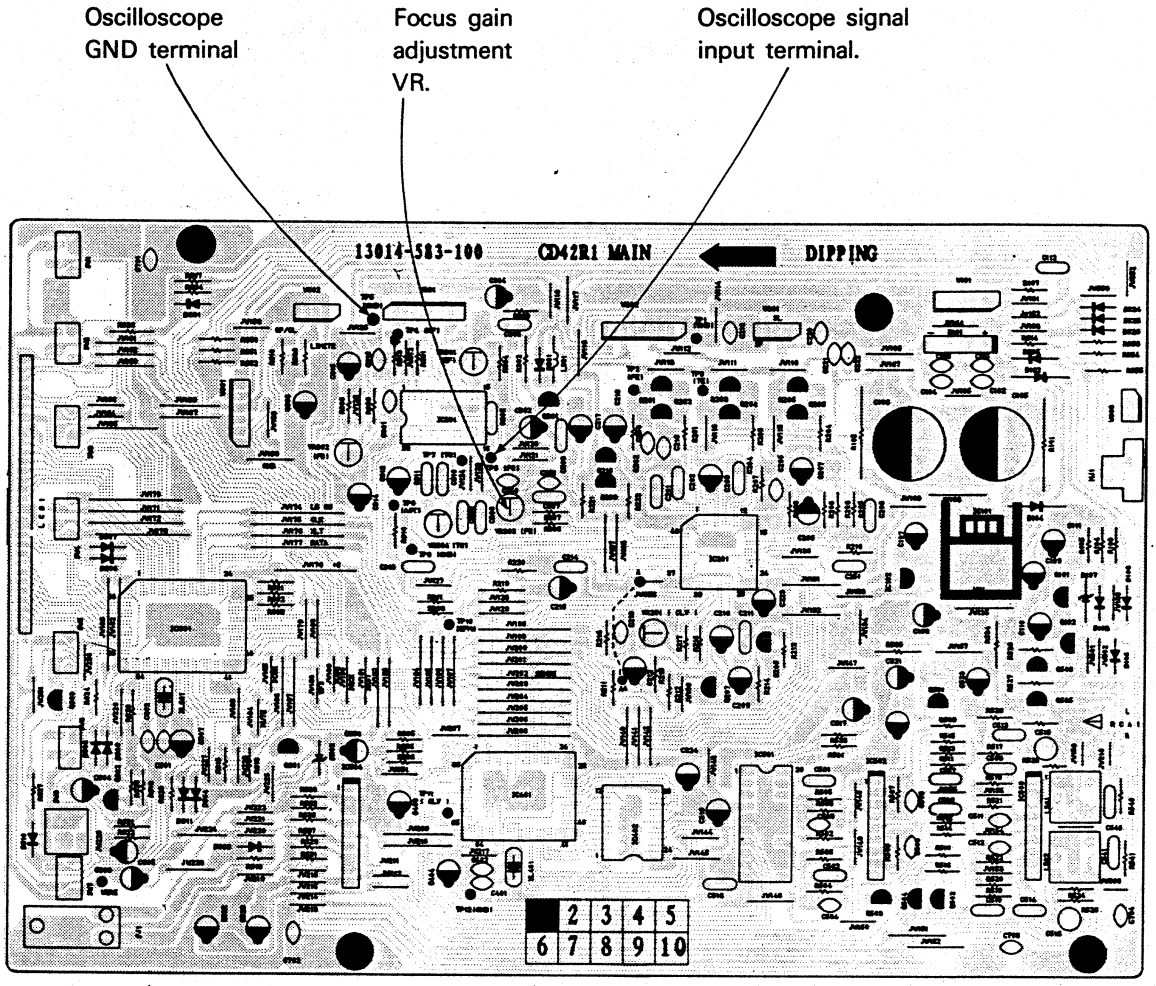
FOCUS BIAS

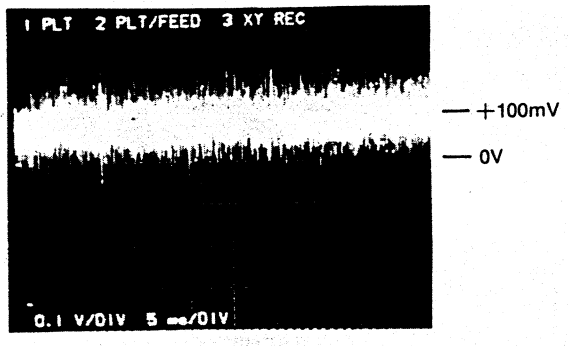


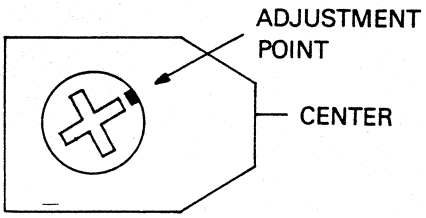
3. FOCUS GAIN ADJUSTMENT

1) Adjust during play.
2) Connect GND terminal on the oscilloscope to TP5.
3) Connect signal input terminal on the oscilloscope to TP6.
4) Adjust VR303 so that the center of peak to peak signal becomes DC 100mV on the oscilloscope.

(PARTS LIST)





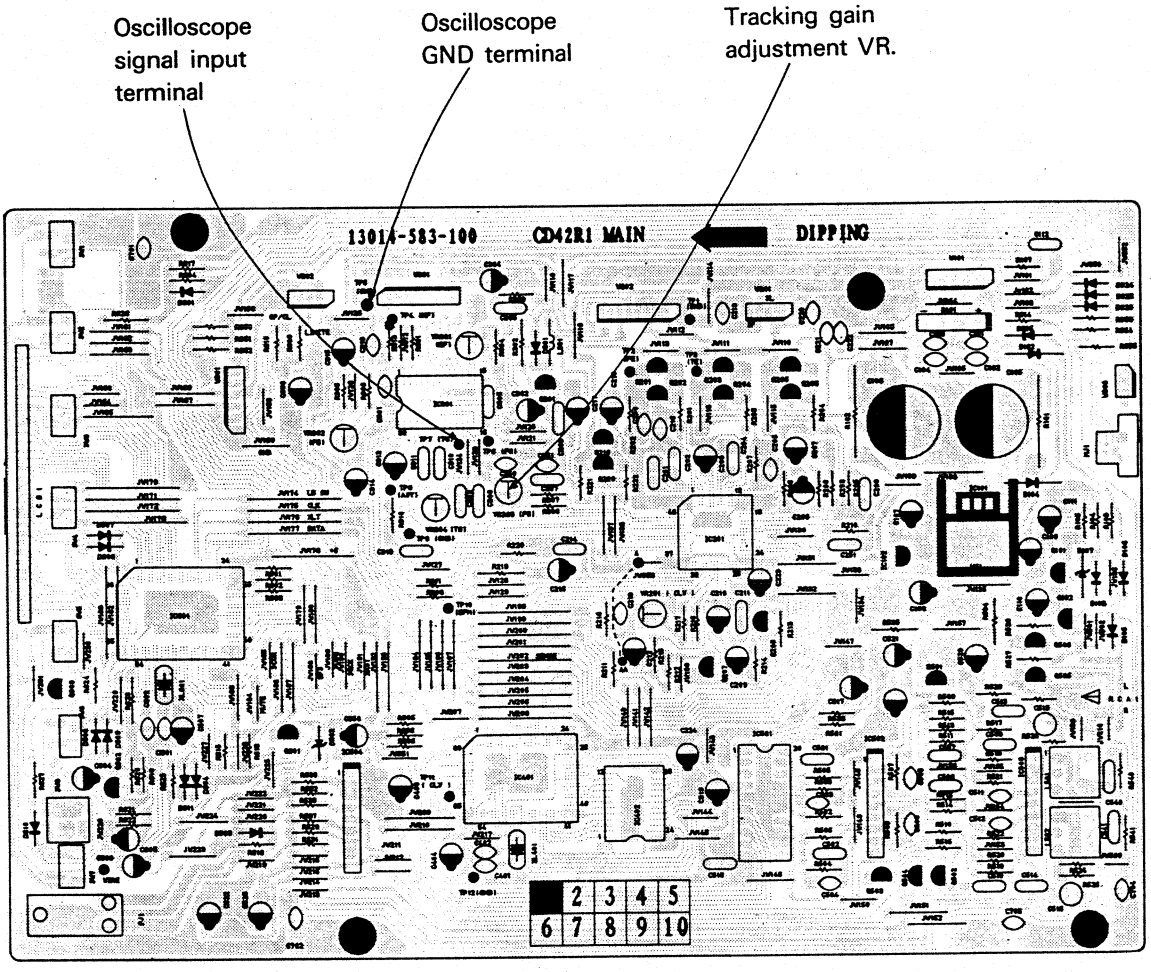


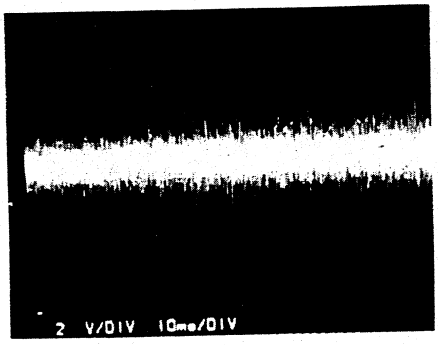
VR303

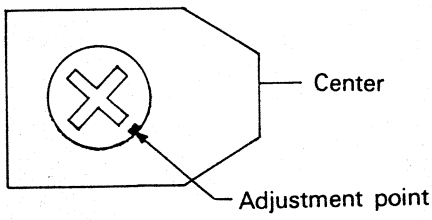
4. TRACKING GAIN ADJUSTMENT

1) Adjust during play.
2) Connect GND terminal on the oscilloscope to TP5.
3) Connect signal input terminal on the oscilloscope to TP6.
4) Adjust VR304 to the position shown in the figure.

(PARTS SIDE)





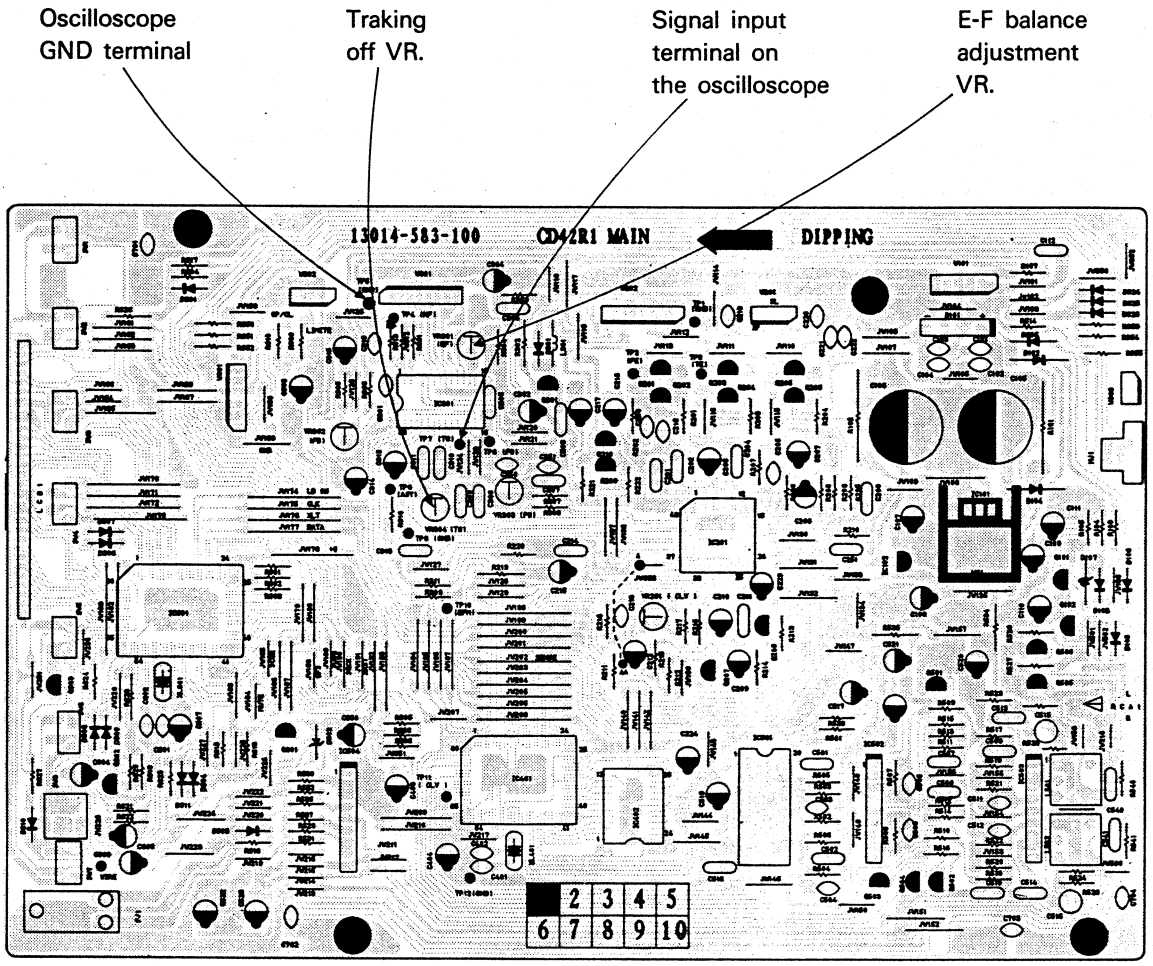


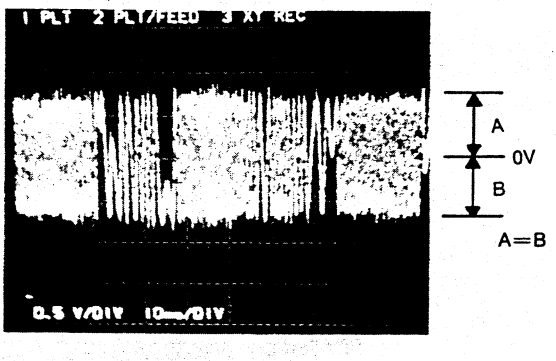
VR304

5. E-F BALANCE ADJUSTMENT

1) Adjust after playing in the mid disc.
2) Set VOLT/DIV of oscilloscope to 50mV.
3) Set TIME/DIV of oscilloscope to 5mS.
4) Connect signal input terminal on the oscilloscope to TP7.
5) Connect GND terminal on the oscilloscope to TP5.
6) Adjust semi-VR(VR304) to the clockwise direction as much as possible.
7) Adjust VR301 so that waveform A corresponds with B.(See figure)
8) Set VR304 to the same position as in the previous tracking gain adjustment.

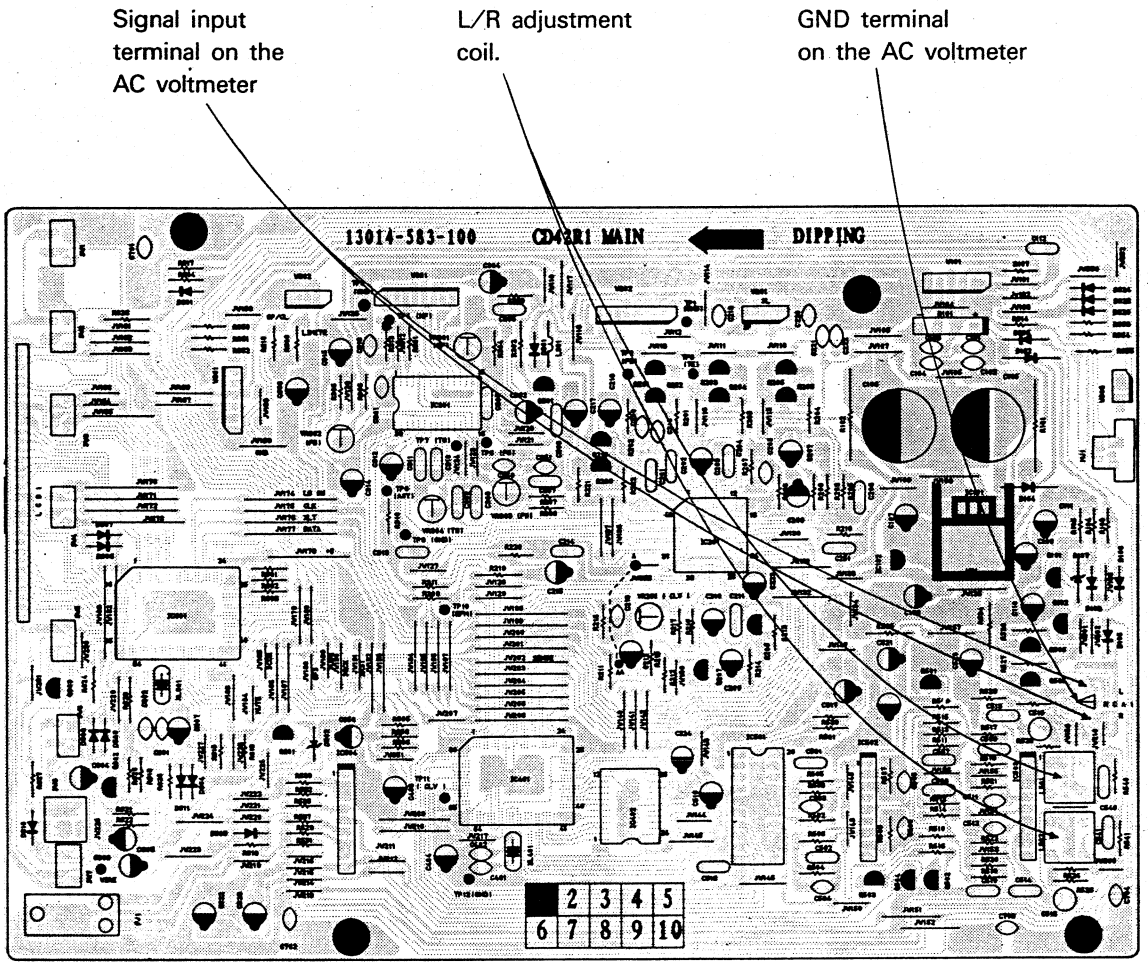
(PARTS SIDE)



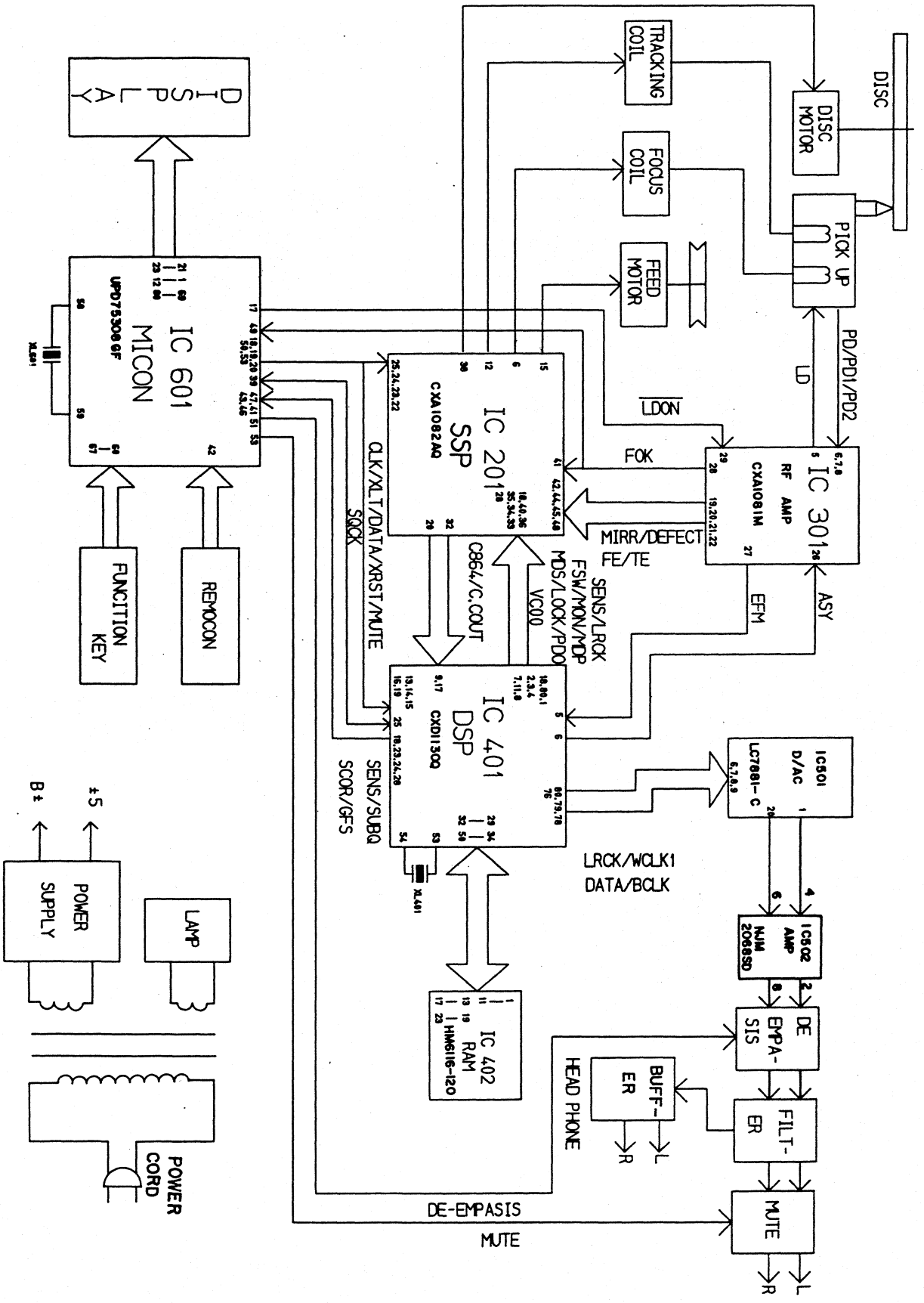


6. AUDIO OUTPUT LEVEL BALANCE ADJUSTMENT

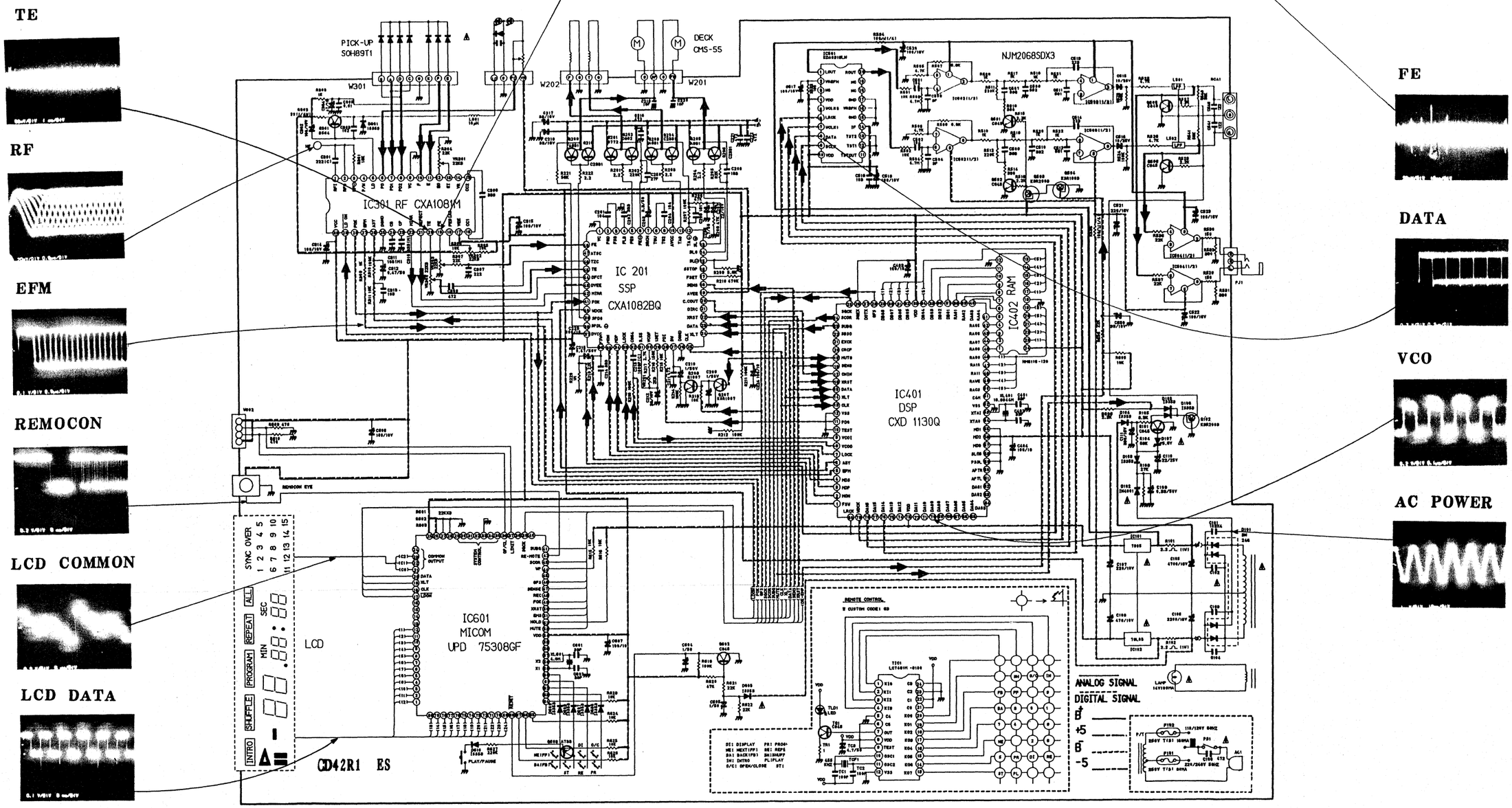
1) Connect GND terminal on AC voltmeter to RCA GND terminal.
2) Connect L and R output terminal to the signal input terminal on AC voltmeter.
3) Adjust L501 and L502 to 2.0±0.1V on the AC voltmeter.



■ BLOCK DIAGRAM



■ SCHEMATIC DIAGRAM



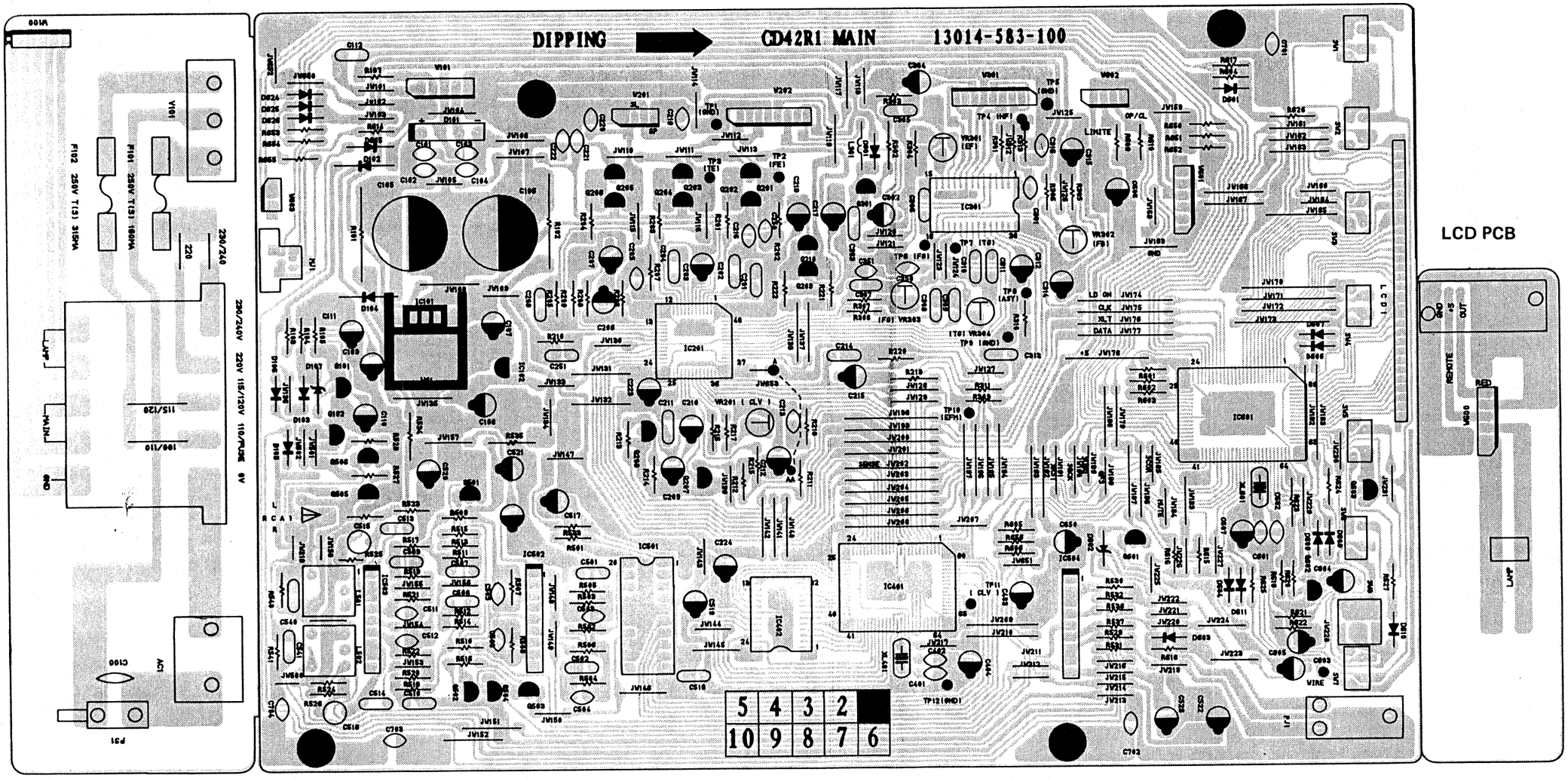
1. The unit of all resistors is Ω(K=KΩ, M=MΩ).
   All resistors are 1/8W or 1/4W unless otherwise stated.
2. The unit of all capacitors is μF, P=PF.
3. The schematic diagram may change for improvement without prior notice.

■ PCB PATTERN AND MARKING(PATTERN SIDE)

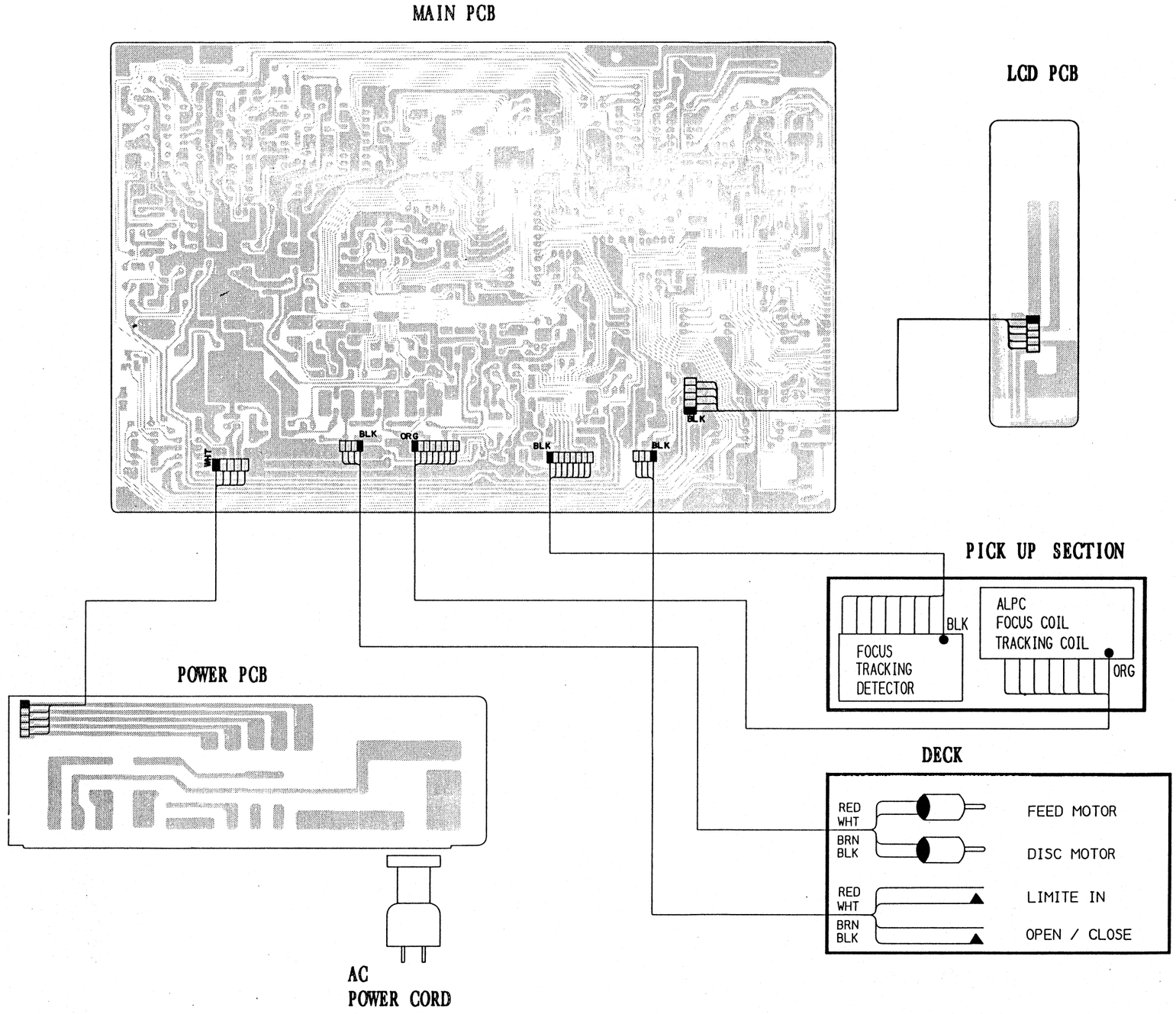
POWER PCB

MAIN PCB

LCD PCB



■ WIRING DIAGRAM(PARTS SIDE)



■ IC AND TR VOLTAGE READING

CXA1082AQ(IC 201) : SERVO SIGNAL PROCESSOR

* Value in stop mode

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
VOLT	0	0	0	0	-0.6	0	0.3	0	0	4.9	0.5	0	0	0	0	0	-4.1	3.1	-5.0	0	4.9	4.9	2.7	4.9
PIN	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
VOLT	4.6	0	2.7	2.7	2.2	2.2	3.5	2.0	0	0	0	0	5.0	0	-0.5	2.4	0.1	0	-5	-4.2	0	0	0	0

HM6116-120(IC 402) : S-RAM

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
VOLT	1.3	4.0	2.7	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	0	1.9	1.8	2.4	2.6	2.4	0	1.3	2.2	4.3	2.0	2.4	4.9

CXD1130Q(IC 401) : DIGITAL SIGNAL PROCESSOR

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VOLT	0	0	0	0	2.4	2.5	0	2.2	2.2	0	2.9	0	4.6	4.9	2.7	4.9	0	3.1	4.6	0
PIN	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
VOLT	0	4.0	0	0	4.9	4.9	2.4	0	2.4	2.6	2.4	1.8	4.9	1.9	1.3	4.0	2.7	2.4	2.4	2.4
PIN	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
VOLT	2.4	2.4	2.4	2.4	2.4	2.4	2.0	1.3	4.3	2.2	2.4	0	1.9	2.2	0	4.9	0	0	0	1.2
PIN	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
VOLT	1.2	3.6	3.6	1.8	1.8	1.8	4.9	2.4	2.4	2.4	4.8	4.9	4.9	4.9	2.4	2.4	2.4	0	2.4	2.4

UPD 75308GF(IC 601) : μ-COM

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VOLT	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	4.9	4.9	4.9	4.9	4.9	4.6	4.9	2.7
PIN	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
VOLT	2.4	2.4	2.4	2.4	4.9	4.9	3.2	1.6	0	0	0	0	0	0	0	0	0	0	4.9	4.9
PIN	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
VOLT	0	4.9	0	4.9	0	0	3.1	0	0	4.9	4.6	4.9	4.6	4.9	0.8	2.4	4.2	2.1	2.5	0.4
PIN	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
VOLT	4.8	4.8	4.8	4.9	4.9	4.9	4.9	4.8	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4

LC7881-C/KDA 0316LN(IC 501) : DIGITAL ANALOG CONVERTOR

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VOLT	2.4	4.8	4.8	4.9	0	2.4	2.4	0	2.4	4.9	0	0	0	4.9	0	0	0	0	0	2.4

CXA1081M(IC 301) : RF AMP

PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
VOLT	0	0	0	4.5	4.4	-5.0	0	0	0	0	0	0	0	0	-1.0
PIN	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
VOLT	1.2	-5	0.1	0.1	0	-4.2	0	-3.5	0	0	2.5	2.3	0.1	4.9	4.9

	Q101	Q301	Q501
E	0	4.9	0
B	0.6	4.6	0.7
C	0.1	0.8	0

NJM2068SD : OP AMP

IC \ PIN	1	2	3	4	5	6	7	8	9
IC 502	11.3	2.6	1.1	0.5	-11.8	0.5	1.1	2.8	11.3
IC 503	11.3	2.6	2.6	2.6	-11.8	2.8	2.8	2.8	11.3
IC 504	11.3	0	0	0	-11.8	0	0	0	11.3

	Q502	Q505	Q506	Q602	Q603
E	0	0	0	0	4.9
B	0.7	0.6	0.6	-4.9	4.4
C	0	0	0	4.8	0

	Q102	Q201	Q202	Q203	Q204	Q205	Q206	Q207	Q208	Q209	Q210	Q503	Q504
E	4.0	0	0	0	0	0	0	0	0	0	0	4.9	0
C	4.0	-13.2	12.9	-13.2	12.9	-13.2	12.9	0	0	-13.2	12.9	4.9	0
B	0	-0.6	-0.6	0.5	0.5	0.5	0.5	0	4.6	-0.5	-0.5	0	2.6

MC78MO5(IC 101)

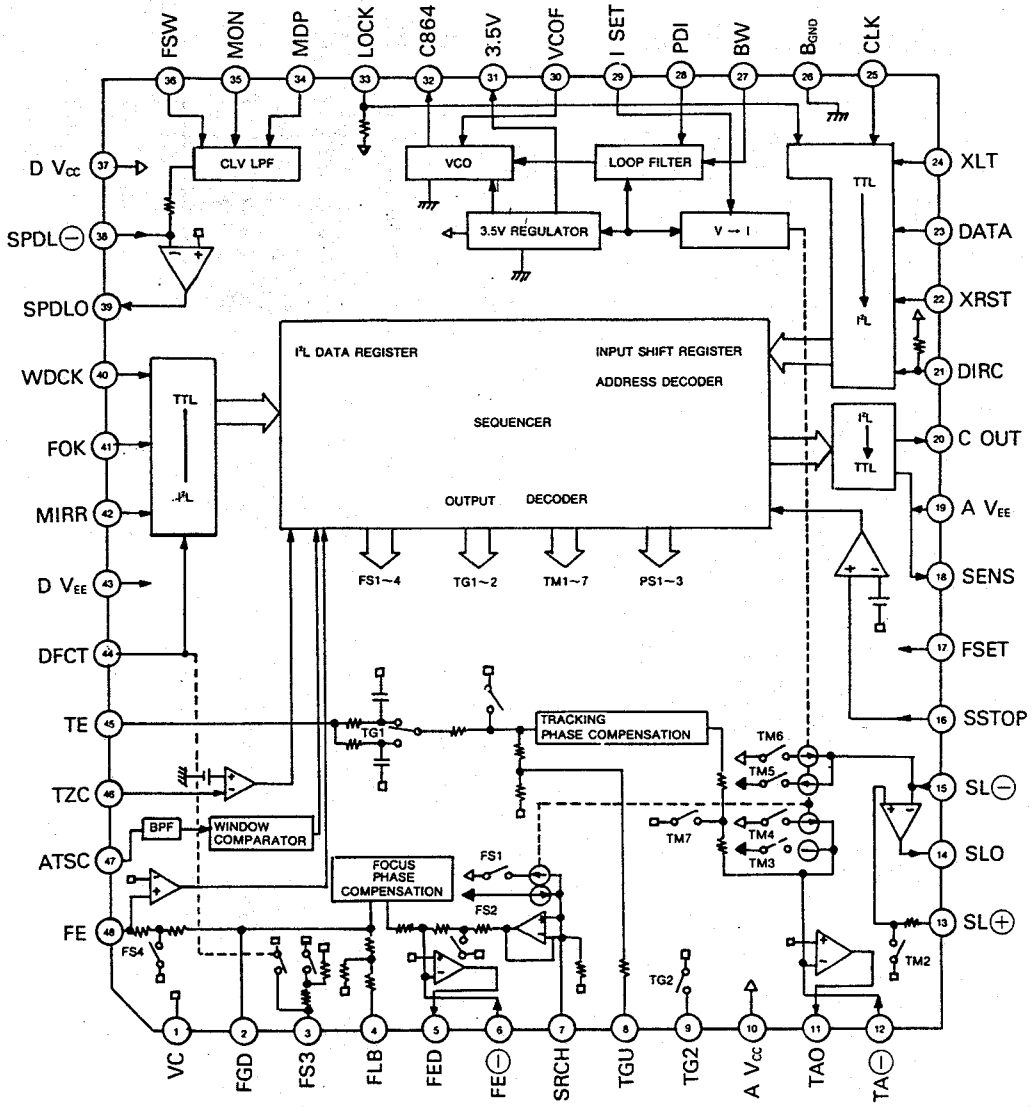
IN	G	OUT
12.6	0	5

MC79LO5(IC 102)

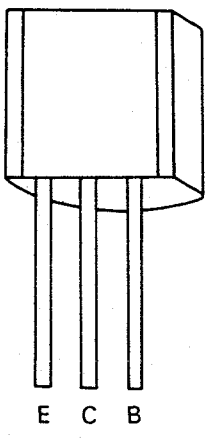
G	IN	OUT
0	-13	-5

■ IC AND TR LEAD LAYOUT

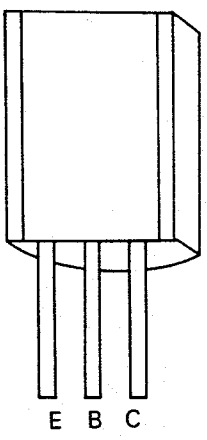
- **CXA1082AQ(SERVO SIGNAL PROCESSOR) : IC 201**



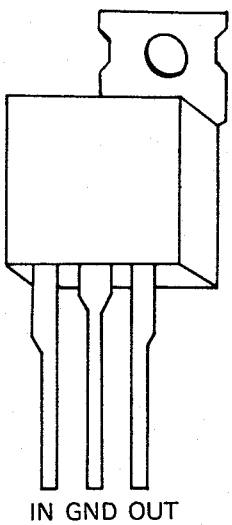
- **KSC 2331**
  KSC 931
  KSR 2003
  KSR 1003
  KSR 1007



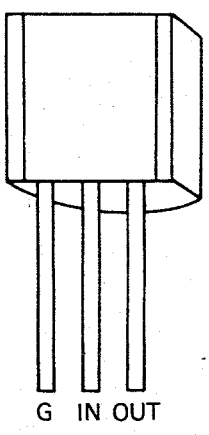
- **KSB 564**
  KSC 945
  KSA 733



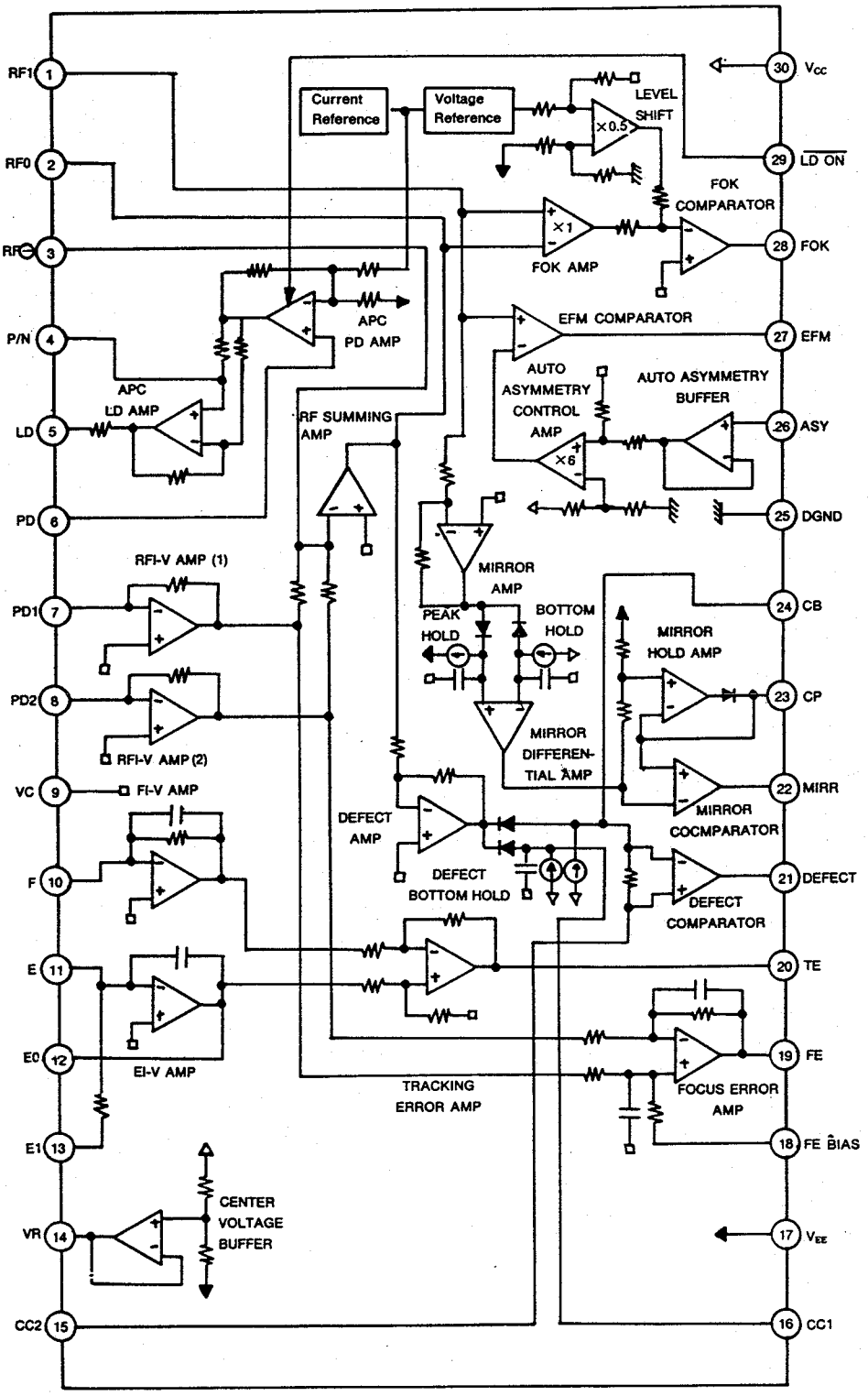
- **MC7805C**



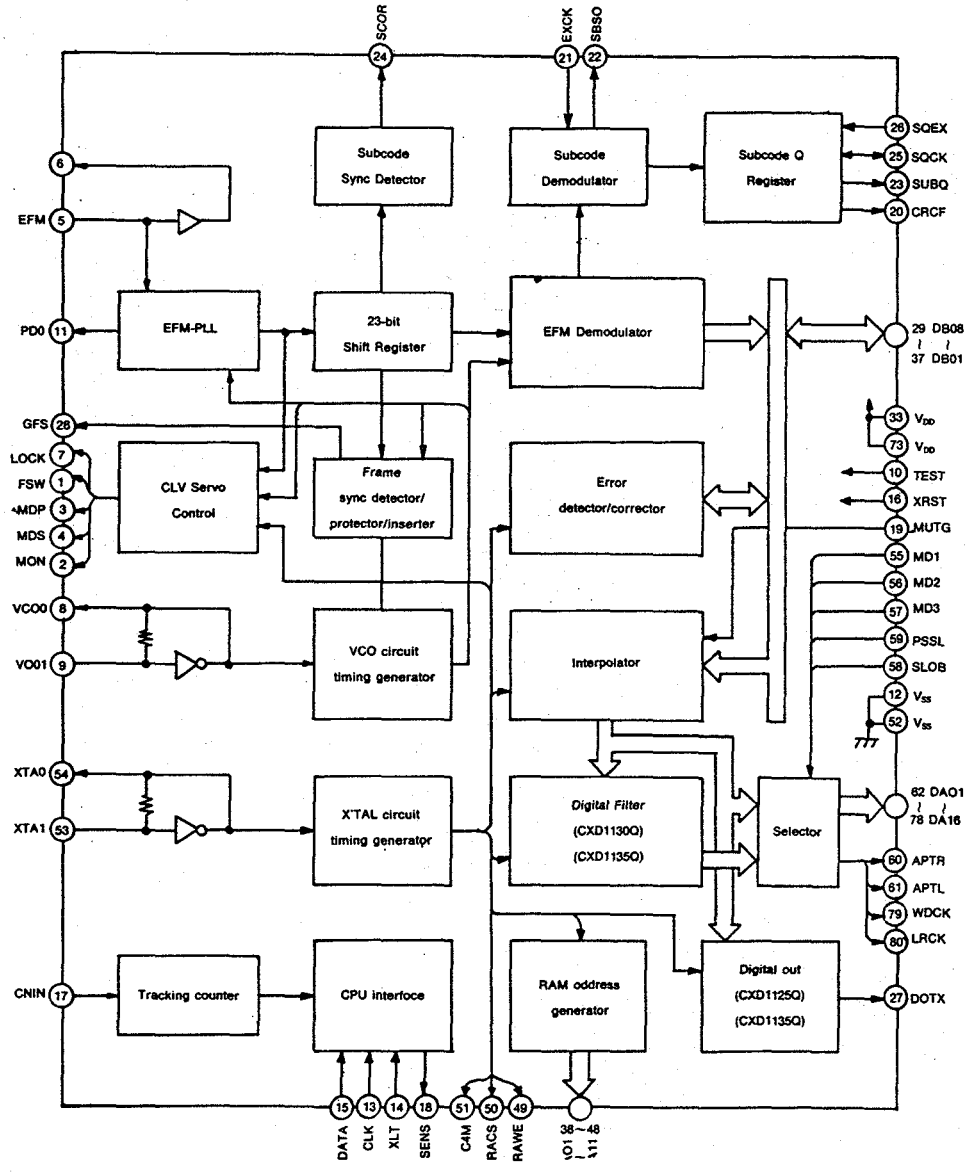
- **MC79L05**



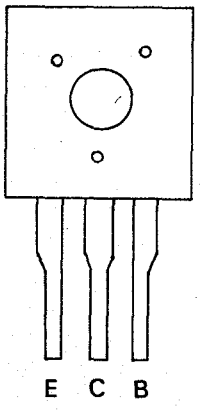
CXA1081M(RF AMP) : IC 301



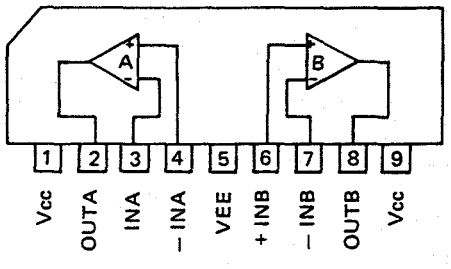
• CXD1130Q(DIGITAL SIGNAL PROCESSOR) : IC 401



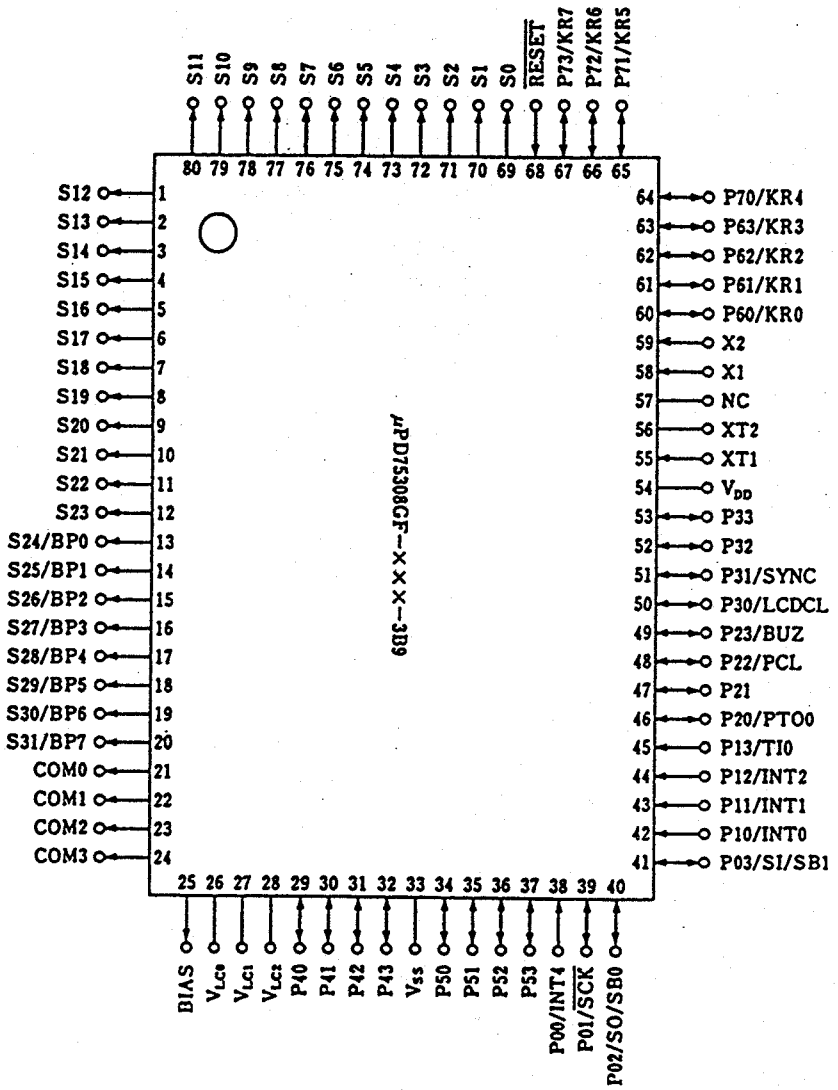
· KSD 882
KSB 772



· NJM2068SD(OP AMP) : IC 502, 503, 504

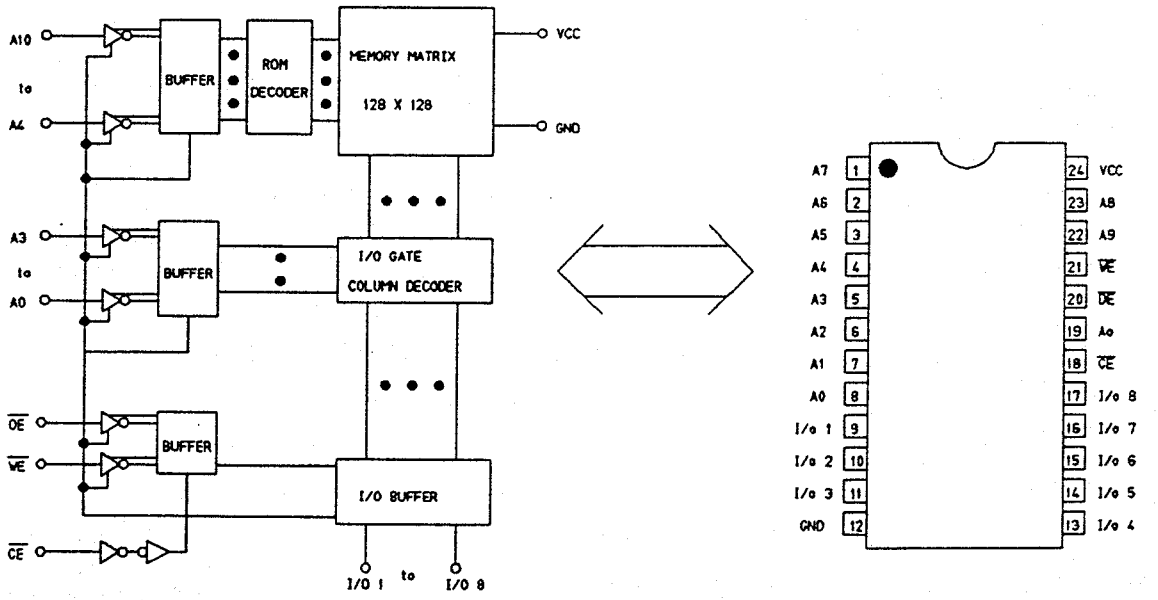


• UPD75308MICOM) : IC 601

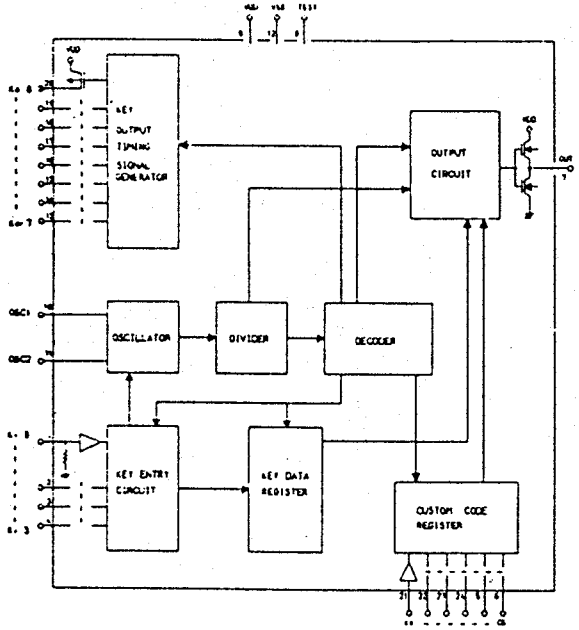


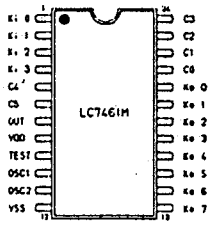
BP0-7 : Bit Port
KR0-7 : Key Return
$\overline{SCK}$: Serial Clock
SI : Serial Input
SO : Serial Output
SB0, 1 : Serial Bus 0, 1
$\overline{RESET}$: Reset Input
S0-31 : Segment Output 0-31
COM0-3 : Common Output 0-3
V_{LC0-3} : LCD Power Supply 0-2
BIAS : LCD Power Supply Bias Control
LCDCL : LCD Clock
SYNC : LCD Synchronization
TI0 : Timer Input 0
PTO0 : Programmable Timer Output 0
BUZ : Buzzer Clock
PCL : Programmable Clock
INT0, 1, 4 : External Vectored Interrupt 0, 1, 4
INT2 : External Test Input 2
X1, 2 : Main System Clock Oscillation 1, 2
XT1, 2 : Subsystem Clock Oscillation 1, 2
NC : No Connection

• HM6116-120(RANDOM ACCESS MEMORY : RAM) : IC 402

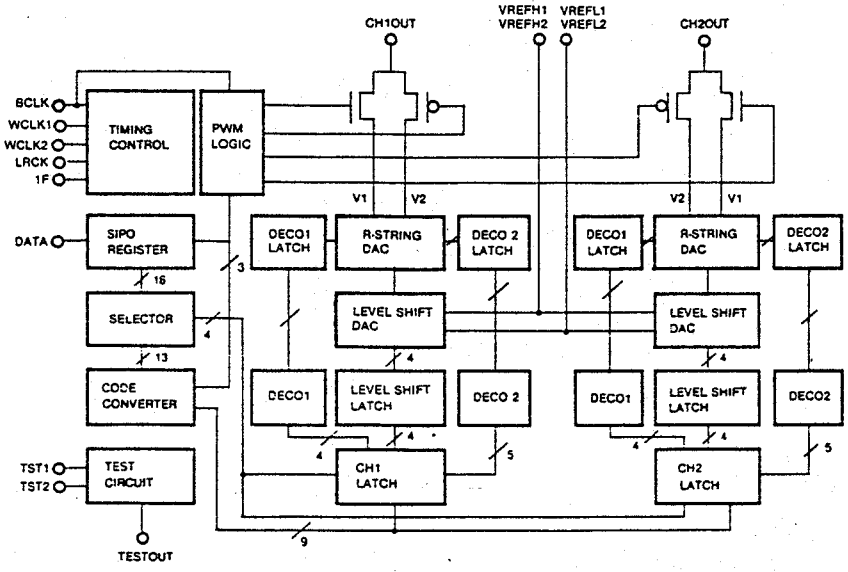


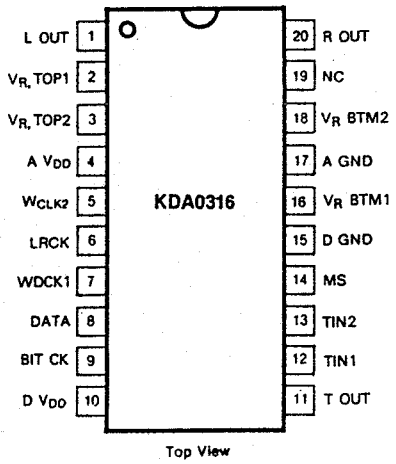
• **LC7461M(REMOCON) : TIC1**





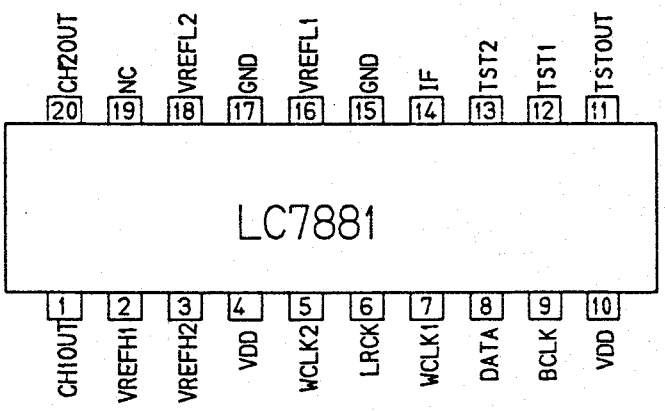
• **KDA0316N(D/A CONVERTOR) : IC 501**





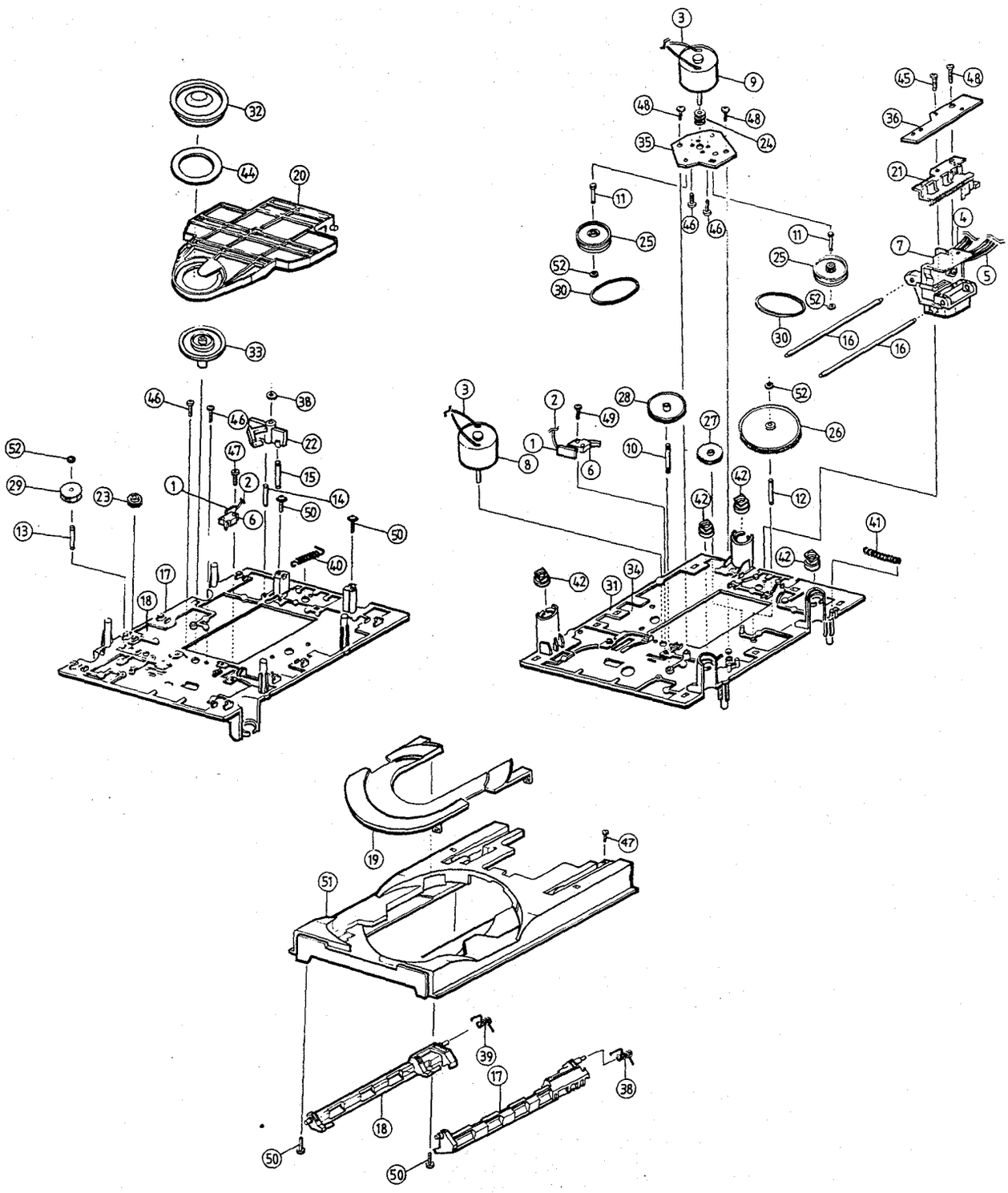
Top View

* LC7881(D/A CONVERTOR) : IC 501

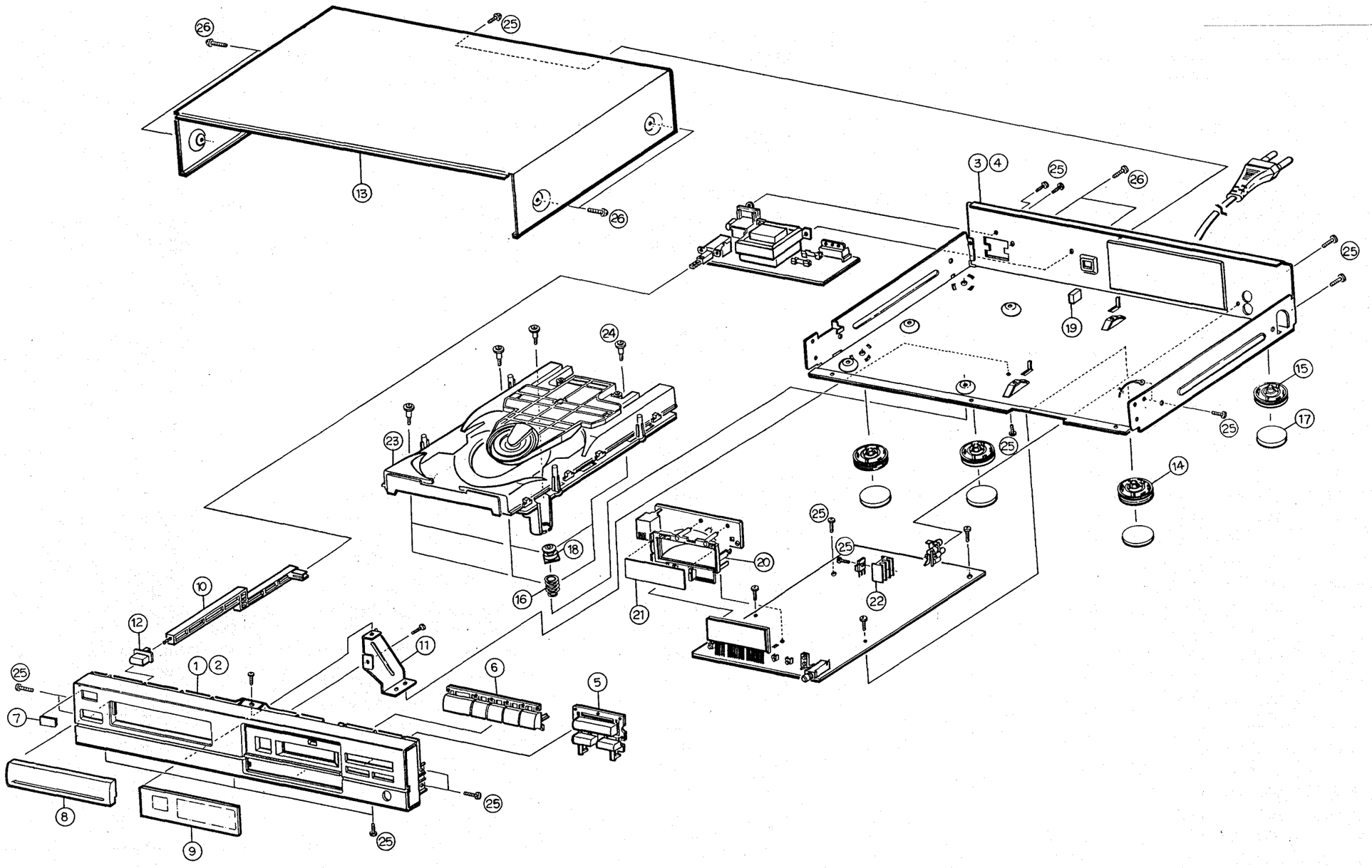


■ EXPLODED VIEW

1. CD DECK SECTION(CMS-55 : 19840-000-110)



2. MAIN SECTION



■ PARTS LIST

1. ELECTRONIC PARTS

MAIN SECTION

LOCATION NO	CODE NO.	DESCRIPTION AND SPECIFICATION	Q'TY	NEW	REMARK
IC 601	12109-310-420	IC MICOM ; μPD75308GF-696-3B9	1	★	
IC 301	12109-323-730	IC-RF AMP ; CXA1081M	1		
IC 201	12109-323-740	IC-SS PROCESSOR ; CXA1082AQ	1		
IC 401	12109-323-750	IC-DS PROCESSOR ; CXD1130Q	1		
IC 402	12109-323-800	IC-SRAM ; CXK5816-M15L/HM6116-120	1		
IC 501	12109-401-310	IC D/A CONVERTER : KDAO316LN	1		OPTION
IC 501	12109-310-840	IC D/A CONVERTER : LC7881-C	1		OPTION
IC 502, 3, 4	12119-401-760	IC-OP AMP ; NJM2068SD/μPC4570HA	3		
IC 102	12109-401-750	IC REGULATOR ; MC79L05	1		
IC 101	12119-601-770	IC-REGULATOR ; MC7805	1		
LAMP	12059-421-100	PILOT LAMP ; 14V100MA 4.1PI	1	★	
REMOTE	12199-101-130	REMOCON EYE ; SV06C	1		
LCD1	12339-102-160	LCD ; HLC9918-01-4310	1	★	
PJ1	13339-118-010	JACK PHONE ; SOQ9478-01-010	1	★	
RCA1	13339-544-040	JACK-RCA ; ABS & BST2 2P(S-348)	1		
SW6, 7	13559-201-070	TACT SWITCH ; JTP-1236AH 100G	2	★	
SW1, 2, 3, 4, 5	13559-102-010	SWITCH-TACT ; JIP 1236A 160G	5		
SW8	13559-901-130	TACT SWITCH ; SKHTLA(KHT-MA901)	1	★	
PS1	13599-902-040	SWITCH-POWER ; SDDLIPCH LO11	1		
D101	12169-209-150	DIODE BRIDGE ; 3N246 1A 50V	1		
L501, 502	14529-414-020	FILTER-LPF ; FB-10D, 42529704100	2		
XL601	14534-504-040	CERAMIC-RESONATOR ; CSA4.00MG	1		
XL 401	14539-401-050	X-TAL ; HC 18U 16.9344MHz	1		
Q201	12149-201-480	TRANSISTOR ; KSB 772-Y	1		
Q202	12149-401-950	TRANSISTOR ; KSD 882-Y	1		
Q603	12149-101-520	TRANSISTOR ; KSA733-Y, TAPE	1		
Q203, 205, 209	12149-101-590	TRANSISTOR ; KSA931-Y, TAPE	3		
Q301	12149-202-050	TRANSISTOR ; KSB564A-Y	1		
Q101, 602	12149-301-900	TRANSISTOR ; KSC 945-Y, TAPE	2		
Q501, 2, 5, 6	12149-301-900	TRANSISTOR ; KSC 945-Y, TAPE	4		
Q204, 206, 210	12149-301-910	TRANSISTOR ; KSC2331-Y, TAPE	3		
Q102, 503	12159-301-330	TR-DIGITAL ; KSR2003, TAPE	2		
Q504	12159-301-780	TRDIGITAL ; KSR 1003	1		
Q207, 208	12159-301-800	TRANSISTOR ; KSR 1007	2		
D102	12169-201-080	DIODE-RECTIFIER ; IN4001, TAPE	1		
D107	12169-404-110	DIODE-ZN ; RD5.6FB/μZP-5.6B	1		
L301	12429-508-100	COIL-CHOKE ; 10μH			
PCB	13014-583-100	PCB-MAIN CD42R ; 163×330×1.6T 1V-O	1	★	
BD210	14049-032-910	FERRITE BEED INDUCTOR ; 3881ST	1		
BD217, 229	14049-033-420	FERRITE BEED INDUCTOR ; 3857S TAPE	2		

LOCATION NO	CODE NO.	DESCRIPTION AND SPECIFICATION	Q'TY	NEW	REMARK
R101, R102	11048-477-229	R-METAL OXIDE ; RSIT 2.2J MINI TYPE	2		
P/PHONO	13324-500-310	PLUG-PHONO ; CONNECTOR 1200MM	1		
P/T1	12869-221-400	TRANS-POWER ; 48×20MM CD42R-110/220V	1	★	OPTION
P/T1	12869-221-500	TRANS-POWER ; 48×20MM CD42R-220V	1	★	OPTION(VDE)
P/T1	12869-221-700	TRANS-POWER ; 48×20MM CD42R-120V	1	★	OPTION(UL, CSA)
P/T1	12869-221-710	TRANS-POWER ; 48×20MM CD42R-240V	1	★	OPTION (B S)
P/CORD	13059-808-061	POWER CORD SET ; KKP-419C/KKS-15KLCE-2 VDE	1		OPTION VDE
P/CORD	13053-806-611	POWER CORD SET ; SPT-1 PEBAG UL, CSA	1		OPTION(UL, CSA)
P/CORD	13059-808-080	POWER-CORD AC ; BS4491 KS-15 5.4FT BS W/C	1		OPTION(BS)
P/CORD	13059-808-220	POWER CORD AC ; KP560 LTSA-2F/KS-15 2M W/C	1		OPTION(AP2)
AC1	13359-010-109	AC SOCKET ; HSCO527-01-010	1	★	OPTION(EP2)
AC1	13359-010-110	AC SOCKET ; HSCO528-01-020	1	★	OPTION(CP2)
F101	14709-241-420	FUSE ; T250V 80MA 20EUR	1		OPTION(VDE)
F102	14709-241-080	FUSE ; T250V 160MA 20EUR	1		OPTION(VDE)
V101	13599-502-020	COLT SELECT ; PCB 00120353A(354) 110V/220V	1		OPTION
REMOCON HAND SET	14909-501-410	REMOCON-ASSY ; CD42R	1		OPTION
REMOCON HAND SET	14909-501-420	REMOCON-ASSY ; CD42R/E	1		OPTION
TIC 1	12109-401-180	IC REMOCON ; LC 7461M-8100	1.01		REMOCON

2. MECHANICAL PARTS

NO	CODE NO.	DESCRIPTION AND SPECIFICATION	Q'TY	NEW	REMARK
1	16001-612-610	CABINET-FRONT ; HIPS BLK	1	★	OPTION
2	16001-612-620	CABINET-FRONT ; HIPS BLK	1	★	OPTION
3	16121-504-010	CHASSIS BOTTOM ; SECC 0.8T	1	★	OPTION
4	16121-504-020	CHASSIS BOTTOM ; SECC 0.8T	1	★	OPTION
5	17622-504-010	KNOB-PLAY ; ABS BLK	1	★	
6	17623-581-510	KNOB-FUNCTION ; ABS BLK	1	★	
7	18024-600-530	BADGE-HI FI ; COPPER 0.3T GOLD(HI FI)	1		
8	17643-525-410	DOOR-GUIDE ; ABS BLK	1	★	
9	17654-564-210	WINDOW-LCD ; ACRYL 2.0T	1	★	
10	15253-503-710	LEVER-POWER ; ABS BLK	1		
11	16624-573-910	BRACKET-CENTER ; SECC 0.8T	1	★	
12	17624-606-110	KNOB-POWER ; ABS 94HB BLK(AV-5, SAM)	1		
13	16102-506-510	CABINET-TOP ; VINYL STEEL BLK 0.75T	1	★	
14	16072-500-110	FOOT ; ABS 94HB HOT STAMPING(K860A/QUE)	2		
15	16072-500-120	FOOT-1 ; ABS 94HB BLK K860 QUE	2		
16	16674-570-320	SPRING-DECK(B) ; STSW#27	4		
17	16804-516-620	CUSHION-FOOT ; SPONGE 5.0T	4		
18	16804-517-820	RUBBER-DECK ; BUTYL SCM7550	4		
19	16804-520-110	CUSHION-PCB ; EVA	1	★	
20	16602-503-510	HOLDER-LCD ; ABS WHT	1	★	
21	17654-564-310	FILTER-LCD ; PC WHT 0.5T	1	★	

NO	CODE NO.	DESCRIPTION AND SPECIFICATION	Q'TY	NEW	REMARK
22	15684-507-610	HEAT-SINK : EXTR AL WHT	1		
23	19840-000-110	DECK-CD(DRAW) ; CMS-55	1	★	
24	17094-504-310	SCREW-STUD(B) : TAP 2S−3×8	4		
25	17458-130-081	SCREW-TAP TITE, BH : B−3×8 FE FZY	21		
26	17128-640-083	SCREW-TAP TH : 3S−4×8 FE FZB	6		

• **CD DECK ASS'Y**

NO	CODE NO.	DESCRIPTION AND SPECIFICATION	Q'TY	NEW	REMARK
1	19840-000-110	DECK-CD(DRAW) : CMS-55	1		
2	13029-041-130	CONNECTOR ; 4PIN(SW)	1		
3	13029-041-230	CONNECTOR ; 4PIN(MOTOR)	1		
4	13052-901-040	CONNECTOR ; 8PIN(SHIELD)	1		
5	13079-618-125	CONNECTOR ; 8PIN	1		
6	13579-901-010	MICRO-S/W ; SSCTL1217A	2		
7	14239-101-110	SAMSUNG OPTICAL HEAD ; SOH89T1	1		
8	14769-057-240	MOTOR-SPINDLE ; RF-310T(SHAFT 18.9)	1		
9	14769-057-250	MOTOR-FEED ; RF-310T(SHAFT 10.9)	1		
10	15104-531-010	SHAFT-GEAR(C) : SUM24L(SERRATION)SCM7550	1		
11	15104-531-110	SHAFT-GEAR(D) : SUM24L SCM7550L	2		
12	15104-531-210	SHAFT-GEAR(A) ; SUM24L SCM7550L	1		
13	15104-531-220	SHAFT-GEAR(B) ; SUM24L SCM7550L	1		
14	15104-531-310	SHAFT-LEVER(A) ; SUM24L SCM7550	1		
15	15104-531-410	SHAFT-LEVER(B) ; SUM24L SCM7550	1		
16	15104-531-510	SHAFT-PU ; SUS 420J2 SCM7550	2		
17	15252-501-110	LEVER-LIFTER(R) ; P. B. T G15% SCM7550	1		
18	15252-501-210	LEVER-LIFTER(L) ; P. B. T G15% SCM7550	1		
19	15252-501-310	LIFTER-DISC ; ABS BLK SCM7550	1		
20	15252-501-410	COVER-DISC ; P. B. T G15% SCM7550	1		
21	15253-503-310	GUIDE-PU ; P. O. M SCM7550	1		
22	15253-503-410	LEVER-MAIN ; P. O. M SCM7550	1		
23	15254-509-110	GEAR-DOOR SLIDING(A) ; P. A NTR SCM7550	1		
24	15254-513-610	GEAR-MOTOR ; P. O. M SCM7550	1		
25	15254-513-710	GEAR-PU(A)P. O. M SCM7550	2		
26	15254-513-810	GEAR-PU(B) ; P. O. M SCM7550	1		
27	15254-513-910	GEAR-PU(C) ; P. O. M SCM7550	1		
28	15254-514-010	GEAR-DOOR(A) ; P. O. M SCM7550	1		
29	15254-514-310	GEAR-DOOR(C) ; P. O. M SCM7550	1		
30	15274-501-520	BELT-MOTOR ; NEOPLENE 1.2T SCM7550	2		
31	16021-504-710	BRKT MAIN(M) ; E. G T1.6+POM SCM7550	1		
32	16604-538-310	PLATE CHUCK ; P. O. M SCM7550	1		
33	16604-538-410	TURN-TABLE ; P. C G20% SCM7550	1		
34	16622-502-810	BRKT MAIN(P) ; E. G T1.6 SCM7550	1		
35	16624-571-410	BRKT-MOTOR ; EG 1.2T SCM7550	1		
36	16624-571-910	BRKT-P/U ; SECC 1.0T SCM7550	1		
37	16634-502-610	CABLE-TIE ; NYLON 66 08474	2		
38	16674-560-510	SPRING-LIFTER R ; STSW#27 SCM7550	1		

NO	CODE NO.	DESCRIPTION AND SPECIFICATION	Q'TY	NEW	REMARK
39	16674-560-610	SPRING-LIFTER L ; STSW #27 SCM7550	1		
40	16674-560-710	SPRING-COVER ; STSW#27 SCM7550	1		
41	16674-560-810	SPRING-LEVER ; STSW #27 SCM7550	1		
42	16804-517-820	RUBBER-DECK ; BUTYL SCM7550	4		
43	16844-518-220	CUSHION-DOOR ; RUBBER SPONGE 1.0T	1		
44	16844-520-210	SHEET-CHUCK ; HYMERON T0.5 SCM7500	1		
45	17008-120-063	SCREW-PH ; +M2×6 FE FZB CFSW510	1		
46	17098-120-032	SCREW-BH ; +M2×3 FE FZW	4		
47	17108-520-063	SCREW-TAP PH ; 2S−2×6 FE FZB	1		
48	17148-526-081	SCREW-TAP, RH ; 2S−2. 6×8 FE FZY	3		
49	17158-220-103	SCREW-TAP, BH ; 2−2×10 FEFZB	2		
50	17558-230-081	SCREW-TAP TITE SPEC ; S−3×8FZY	4		
51	17641-500-810	DOOR-DISC ; ABS BLK	1		
52	18314-500-810	RING-O ; POLY SLIDER PI1.2 SCM7550	5		